American Cinematographer

ASC

August 1928

Vol. IX No. 3

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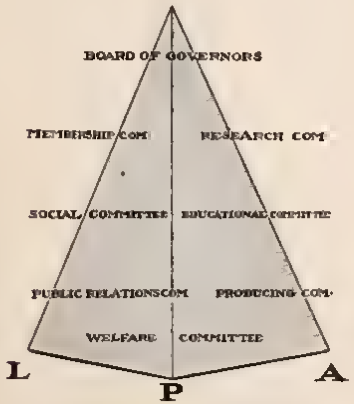

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EDITORIAL--The Voice of the A. S. C.

OUT OF THE PAST—WHAT OF THE FUTURE?

The sound pictures have the entire industry by the ears.

And a lot of incompetent opinion is floating about.

Sheiks and ingenues are talking learnedly of sound pictures.

Producers are up in the air, while technical men are working as never before to solve present problems or to produce something new or better.

It is the chemicalization before precipitation.

Nobody is wise enough to foretell just what will happen, and so, while waiting, it may not be time lost to recall the pioneer days of sound pictures—days forgotten by all, but a very few men who were of the inner councils of the giants of those times.

How many recall the General Patents Company? Will the sound pictures bring about a situation similar to that developed by the Patents Company, which found a compromise among the many claimants by pooling their interests in one great company in an effort to exclude the independents?

What is the present position of independent producers in face of the fact that the modern patents are controlled by the big producers: Vitaphone by Warner Brothers; Movietone by Fox-Case; R. C. S. system pretty well controlled, etc.?

Can the independents subscribe to the heavy licenses these patentees demand?

DO THE INDEPENDENTS KNOW THAT THEY HAVE AVAILABLE A SYSTEM FREE FROM ENCUMBRANCES—WHITSON'S PATENTS?

What will the early pioneers reap from this harvest of sound pictures after years of work and opposition?

What is Mr. Edison's attitude, considering the number of patents he has controlled?

Will history ever reveal the true facts concerning the manner in which he prosecuted his Kinetophone?

Why did he spend nearly a million dollars in perfecting the system and then suddenly withdraw it?

The answers are found in the following suggestions: Opposition to the talkies was illustrated in the manner in which the Cameraphone was harassed by the Patents Company. Doubly opposed first by reason of its being an independent concern, supposedly infringing the motion picture patents; secondly, because the idea of talking pictures was held to be inimical to the regular pictures which even the producers looked upon as a novelty that would soon pass, and they thought to reserve the talkies for a revival of interest when the popularity of the straight pictures began to wane.

In the face of this opposition, Mr. Edison devoted over four years and nearly a million dollars in developing the Kinetophone. When it was ready for the market there resulted a series of moves which startled everyone connected with the business.

The wonderful Kinetophone studio, equipped for the purpose with accoustical provisions, lights and all other accessories, was dismantled and sold, and it may be stated here and now that THE AMERICAN CINEMATOGRAPHER is informed by a technician who worked in the Kinetophone studio with the Edison staff during all the four years of the Kinetophone's formative period, that the Kinetophone was a perfected system and easily equal to any sound picture system existing today. In some points it was superior—in one or two not quite so good—that of efficient motors, for instance, but even here the operation of the system was satisfactory.

This information is broadcast simply in order that the historical record of the development of sound pictures may be kept straight.

The Kinetophone was removed from its own laboratory in New York to Orange and housed in a circus tent, the entire system modified and a new series of pictures made under such primitive conditions (even for those times). These new pictures were all short, silly subjects of no value, while many of the perfected pictures already demonstrated and approved, were shelved. The new pictures were so bad that they were not exhibited and the old ones, which previously had been shown, were called out and demonstrated again.

Now, the reasonable question is: Why was it that the Edison Company, being at the head of the Patents Company, had to resort to the vaudeville houses to get back some of the money invested in the Kinetophone? Why was the system modified after the first sound pictures produced under it had been considered a great feat of engineering?

The answer is in the supposition that the Patents Company probably considered that the Kinetophone would be injurious to the general interests of the Patents Company. If this conclusion be true it left the Edison Company in the unsatisfactory position of having on its hands an expensive experiment. The Edison Company's only move, therefore, would be to exploit the Kinetophone in some manner agreeable to the Patents Company, and this was probably through the medium of the vaudeville.

This was suggested by the fact that at one time Percy Williams, an important vaudeville manager of those days, was enthusiastic about the Kinetophone, but he never became associated with it, probably owing to the fact that he had just sold out to the United Booking Company with the understanding that he would relinquish all interest in vaudeville.

If there was ever any controversy as to the nature of the Kinetophone as a form of entertainment this point was eventually cleared by Kinetophone being exploited in vaudeville, for a very short period, it is true, but long enough nevertheless to prove that the Kinetophone was a legitimate and popular vaudeville feature.

The Edison Company, however, must have received considerable revenue from foreign countries where the Kinetophone operated for some time after the apparent collapse of the American issue.

From the manner in which the enterprise was handled it may be assumed that the public never saw the best efforts of the Edison Kinetophone.

Is there, really, anything new, or do we continually work over the old diggings?

Will the shadow of the Kinetophone arise to question the giants of these latter days?

This being the heated term The A.S.C. Magazine for August has cut out much of its heavy technical matter to make room for a lighter vein of text, but our heavy guns will come into action again in September. We are sure our readers will welcome the change.

Enlargements from Single Frame Motion Pictures

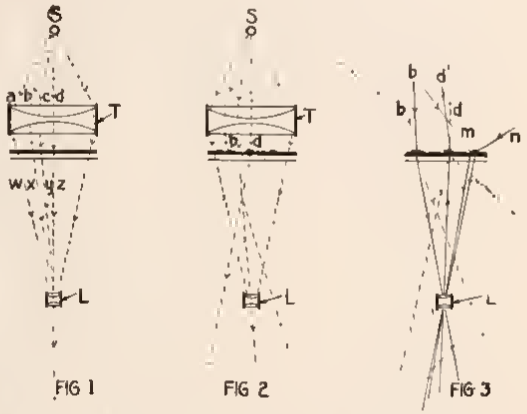
A Transaction of the S. M. P. E.

By K. C. D. Hickman
of the Eastman Kodak Company, Rochester, New York

A glass rod in spite of its transparency is quite visible. The reflections from its surface and interior and the imaging of other objects by refraction make it easy to see. If the rod is lowered into a glass of water, it becomes much less obtrusive and sharply defined; immersed in glycerine, it is practically invisible. Changing the rod's environment from air having a refractive index widely different from glass to glycerine with the same index as glass has prevented surface reflection and destroyed the power to deflect a light beam and form images.

The essential portion of a finished motion picture film, the picture, cannot be supported in space but must rest in a stratum of gelatin upon a transparent base. The gelatin and base, surrounded as they are by air of a different refractive index, have a visibility and an individuality of their own. However perfect the base, there must always develop minute irregularities and scratches which scatter or deflect the light beam and destroy "quality." In theatre projection, where a number of pictures are superimposed each second, the defects being largely irregular tend to cancel themselves in their effect on the retina. Also, "quality" is subsidiary to "interest" of the film. On the other hand, display enlargements from single frames suffer with every minute defect in the small negative. Particularly unpleasant is the grain pattern found in the half tones of the deposit. Irrespective of care in manufacture, there is a natural and inherent tendency for individual emulsion grains to gather together in clumps, and another possibility is that light exposure may select certain grains in the clump for preferential action. It is still a moot point whether further segregation takes place during processing, but it seems probable that a re-arrangement of grains occur while the gelatin is plastic. The result, however, is that there is a minute but quite definite pattern to the body material of the image. Nothing can be done to kill the pattern, but its effect can be minimized. If one regards a piece of film having a contrasty image or one treated with ferricyanide-hypo reducer, it will be seen that the emulsion side reflects light as perfectly as the base on the parts where there is no deposit. In the region of the image only a diffuse reflection can be obtained, not a scatter due to the silver grains superimposed on the regular reflection of a smooth surface but a complete absence of shininess. This means that the grain clumps, whether by tanning or by the room they occupy, have roughened the surface. The effect of each clump is exaggerated by the slight deflection of the beam on its journey from light source or condenser to lens at this point.

The exaggeration and the defects of the film base can be reduced almost to zero by immersing the film in a liquid of the same refractive index or rather the mean index of base and gelatin. Further improvement is effected by using a wide aperture projection lens which concentrates on one layer, the image, and by using a diffused light source. We will deal first with the question of light source. Consider the perfect negative and condenser system suggested in Fig. I. Pencils of light proceed from the source S in straight lines a, b, c, and d to the condenser, where they are uniformly bent to new straight paths w, x, y, z to the lens L. If, however, the negative is not perfect but is irregular or scratched on the surface some of the light pencils will be deflected from their paths, as in Fig. 2. Because the pencils b and d do not reach the lens, the points on the negative where their deflection occurs will be projected as dark places. Suppose, now, we substitute for the condenser supplying approximately parallel rays a window of completely diffused light. Each point on the negative is supplied by rays from an indefinite number of directions; hence, though the pencils b and d do not reach the lens, b' and d' and also m and n which, if the film were not scratched, would pass through in straight lines to be absorbed in the bellows, become bent to pass through the lens. It is



Figures 1, 2 & 3 indicate the path of light pencils through "perfect" film, and film which is irregular or scratched, demonstrating the improvement when the condenser is replaced or reinforced by a diffusing screen.

obvious, therefore, that the more the light is diffused and the larger the area of the window the better chance there is of rendering the surface inequalities invisible.

Diffusing screens vary in efficiency. To break up the light from a single lamp completely requires such a dense piece of opal glass that the projection of a single frame to give a 12x10 image on bromide paper necessitates a very long exposure. Fig. 4 suggests a method of obtaining fairly good illumination. A ventilated lamp-house A accommodates a 200-watt gas filled lamp B. Two inches from the bottom of the tipless bulb a 7x5 sheet of coarse ground glass is secured, and one and a half inch below

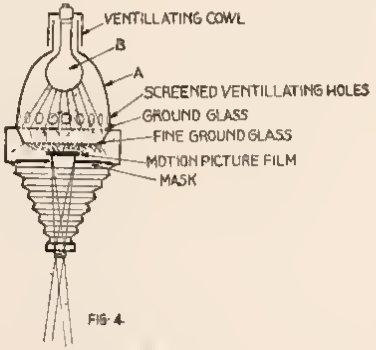


Fig. 4. Diagram of projector designed to minimize imperfections in image and base. Note the large area of diffusing screen and mask isolating a single frame

this a piece of finer and smaller glass. The latter should bring the film to be enlarged as close to the diffuser as practicable. To prevent lens flare from the relatively enormous background degrading the shadows of the picture, a close fitting mask should be placed in or below the carrier, confining the light to the one frame under treatment.

Probably a great many liquids would serve to render the film invisible, but those having a refractive index round about 1.4 to 1.5 with no solvent action on the film are best. A sufficient choice would be:

For dry film: Carbon tetrachloride, Benzene, Chloroform — for use in cell only

For dry film: Xylol, Toluol, Turpentine, Glycerine — for usa in cell or between glass plates

For wet film: Glycerine and water; Water

In the simplest application, the film is sandwiched between two pieces of glass and placed in the enlarging lantern, preferably a vertical projection printer, in which the film may remain horizontal. The sandwiching requires considerable skill. A bottle of pure medicinal glycerine is fitted with a rubber cork and glass tube, Fig. 5A, and kept when not in use covered with a beaker. It is important that the bottle should never be shaken.

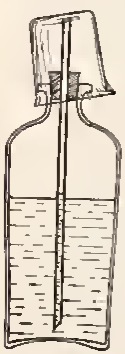


FIG 5a

FIG 5b

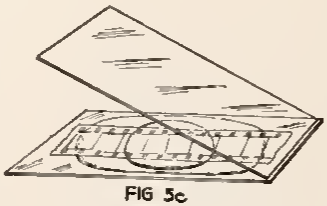


FIG 5c

Figs. 5a, 5b, and 5c illustrate method of producing a Glycerine "Sandwich"

A clean piece of glass is roughly leveled with a spirit level and a pool of glycerine (perhaps a teaspoonful) poured in the center. There must be not a single air bubble. Onto this pool a strip of three or four selected frames must be lowered slowly and in a convex arc emulsion down-wards, Fig. 5B, until all are in contact with the liquid and glass. A second pool is then poured on top of the film and the cover glass lowered into position. This is best done by placing it in contact with one edge and allowing the other end to fall very gradually. The glasses should be considerably bigger than the picture strip, so that plenty of glycerine may be used without it reaching the edges and making a mess of the slide or lantern. Glycerine is chosen as the cementing liquid because it is sufficiently viscous to stay on the glass while mounting and later in the lantern. After use the glasses should be pulled apart, the film wiped, and then put to wash in running water for a quarter of an hour. This washing is the chief drawback to the use of glycerine, which otherwise gives excellent results.

Where many enlargements have to be made, a cell for holding a volatile liquid may be mounted vertically in the carrier slide of the older type of horizonal enlarger. Xylol or carbon tetrachloride make excellent fillings. The film is immersed, moved about to detach adherent air-bells, and squeezed against one wall by a piece of loose glass and a couple of springs, Fig. 6. After use the film is merely wiped and hung up to dry, a matter of a few seconds over all.

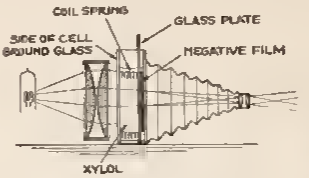


FIG 6

FIG 7

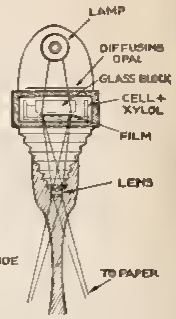


FIG 8

Figure 6 suggests conventional enlarger adapted to take trough of Xylol in place of negative carrier. In Figs. 7 and 8 the same idea is applied to the vertical projection printer using a glass block to eliminate the top surface of liquid

A simple method for really rapid work employs a shallow glass trough and a thick glass block, Fig. 7. The trough is filled with a mobile liquid, the film immersed, and the block lowered at an angle till it squeezes the film flat without the intrusion of air bubbles. The trough should be mounted in a wooden drawer which in turn may slide into a square frame located between the lamp house and bellows of an "autofocus" enlarger or projection printer (Fig. 8). The only danger with such condenserless operation lies in overheating, a danger which can be avoided by having the lamp lit merely for arranging the picture and during exposure.

A useful variation if used with caution is the enlargement from wet film. The refractive index of wet gelatin is so near that of water that merely sandwiching the film between glasses under water, wiping the outside of the glass dry, and placing in the lantern will give excellent results. The water should contain at least 1% of formalin and should be in contact with the film for some minutes before subjecting to the heat of the lantern. The wet immersion does not take care so well of the base side of the film, but if the procedure is reserved for samples direct from processing machinery (i. e., before drying), there should be no trouble from scratches or handling marks.

Besides varying the optical arrangements there are additional schemes for improving quality. In scenes where there is little movement the images in one or two chosen succeeding frames may happen to be identical, though the purely haphazard scratches and grain patterns differ. If a number of frames are focused in turn for a fractional time over the bromide paper, a composite picture is built up which develops with improved appearance. The method is tedious and demands the use of a special projector and pull down mechanism.

Another device consists in throwing the image very slightly out of focus. At the great magnifications employed the outlines of the picture are already a little diffuse, and the addition of a further trifle is hardly noticeable. The grain pattern, however, is reduced from obtrusive sharpness to a less objectionable mottling. A similar effect may be secured in quite a different way. A layer of bolting silk or a photo mechanical half-tone screen may be interposed between lens and paper at a distance from the latter varying from actual contact to two inches away. This imposes a regular mosaic, reminiscent of coarse canvas, on the picture which while destroying little of the detail renders defects in quality less objectionable.

Yet another variation consists in moving the film relatively to the paper during enlargement. This can be done by shaking the enlarger or attaching an electric bell to the lens panel. The advantages, however, are doubtful.

(*Continued on Page 39*)

A Clean Scoop

John Dored, A. S. C. Outpost in Northern Europe, Breaks All Records in Reporting Arrival of Wilkins at Spitzbergen

By John Dored, A. S. C.
Paramount News Reporter in Northern Europe

[*John Dored A. S. C., located at Riga Latvia, away up on the Baltic Sea, is another cinematographer of our Society's far-flung outposts of whom the A. S. C. is proud. Mr. Dored is a camera news reporter attached to the Paramount News Reel Service and has been in Northern Europe several years. An assignment to travel one to five thousand miles on short notice is a part of his every-day life. He is now at work on the Nobile story in Spitzbergen and vicinity.*—Editor's Note.]

On the 12th of April I received instructions by cable from New York to proceed to Spitzbergen and cover the General Nobile North Pole Expedition The destination I had to reach was Kings Bay The same evening I took a train from Riga, crossed the Finnish Gulf between Reval and Helsingfors by steamer, thence to Abo by rail,—Abo-Stockholm-Oslo by steamer

Spending twenty-four hours in Oslo for collecting necessary information about possibilities of my transportation to Spitzbergen, I proceeded northwards by rail to Trondhjem and from there via mail-boat to the Norwegian northern port, Tromso While in Oslo I kept the wires busy and thus secured my transportation to Kings Bay with a seal hunting vessel of sixty tons capacity which was willing to take me across the Arctic Ocean to Spitzbergen.

The name of my vessel was "Mina." Upon my arrival in Tromso, there was the "Mina" waiting for me, ready to start. She was an old, small motorship equipped with two sails and, being a seal-hunting vessel, had no place for passenger accommodation whatsoever. I got a place with the crew, in one of the holds, dark, dirty and noisome beyond description.

Radio Station in Green Harbour. Extreme right house where Dored met Captain Wilkins and shot the first pictures of the Wilkins flight to Spitzbergen.

Camera Reporter John Dored, A S C, on the Wilkins story at Spitzbergen He writes 'Do not advise anybody to tackle the Spitzbergen snows without the skis'

View of an pack-ice, stretching for a thousand miles and extremely difficult to cross This is the kind of ice Camera Reporter of Paramount News, John Dored A S C had to cross in a blinding snowstorm for a distance of about twelve miles in order to reach Captain Wilkins at Green Harbour This walk was started at 3 o'clock in the afternoon and was finished at 8 o'clock next morning

Before continuing my story further I must say that April is an early season for crossing over to Spitzbergen, due to storms and ice The first steamers of the Spitzbergen Coal Company are leaving Norway before the end of May and, therefore, a passage to Spitzbergen before that time is possible only through a special arrangement with some of the seal hunting vessels usually going to the White Sea at this time. So it was in my case, there was no other or better chance for me to get across except to charter "Mina," which, however, was by no means an appropriate vessel for such trip.

We left Tromso on April 21st, but after being out in the ocean for twelve hours we came into such a storm that one of our sails was blown to pieces, the big seas rolled over the deck and the skipper decided to return to the nearest Norwegian port for safety. Twenty-four hours later we reached the port Towsvang and while there I learned the first news about Captain Wilkins' flight to Spitzbergen and his safe arrival in Green Harbor I immediately realized the value of this story and made arrangements with the skipper to go first to Green Harbor instead of Kings Bay. After the storm had quieted down a bit we took our course to Green Harbor, reaching it in ten days, or May 1st. These ten days will stay in my memory as long as I live, during which we had some days of nice weather, but the rest of the time we had continual snow and hail storms. The motor of "Mina" gave out and we were depending upon the one

(*Continued on Next Page*)

remaining sail most of the time. There were many moments when nobody thought we would ever reach our destination.

Quite frequently our vessel had to pass through floating ice-fields stretching for miles. This ice is carried by the current from east to west and up north, coming from Sibera, Franz Joseph Land and other easterly islands of the Arctic. In many instances we saw seals reposing on the ice blocks and we shot 35 of them underway. On two occasions when the shot seal was cut open a baby seal crawled out of its dead mother's body.

As a rule I am a pretty good sailor; do not suffer from sea-sickness, but this time it was too much for me. The first two days at sea I stood firmly the heavy rolling, but on the third day I had to give up. Fresh air outside could not be taken due to the seas rolling overboard. One of the big seas hit the "Mina" so hard that it produced the effect that she had run against a rock. She sprang a leak afterwards and I was hard put to it to keep my outfit out of the water.

During that time, by the rolling of "Mina" I was thrown all over the place, hurt my back and arm badly and skinned my knee, producing a four-inch square wound. Such was the passage to Green Harbor. Upon arrival in Green Harbor there was raging a blinding snow storm, making it impossible to see but a few feet ahead.

"Mina" anchored at ice edge. There was no time to lose. I had to find Wilkins and start my journey to the nearest habitation regardless of the storm. The skipper pointed out the direction where the habitation was supposed to be and, taking along the DeVry, I started on my difficult journey. Every step I took my foot sunk in to the snow above the knee, and the drifting snow, carried by a headway wind of great velocity, struck my face painfully.

The habitation proved to be two and a half miles distant and it took me three and a half hours to make it, arriving there absolutely exhausted. Wilkins was there and aware of my coming to Spitzbergen. Green Harbor has the only government radio station. Another two and a half miles further inland from the first habitation I met Captain Wilkins. A heap of cables from New York was waiting me there, giving instructions to cover the story of Captain Wilkins and to return to Norway on first available vessel.

As "Mina" was supposed to await my return but seven hours, after a hurried talk with Captain Wilkins I had to make my way back to "Mina" under the same trying conditions, but I was forced to do it to make new arrangements with the skipper. When this was done I returned again to the radio station and when the journey was over I had made in all ten miles in eighteen hours' constant walking through the deep snow and raging storm. The new arrangement with "Mina" called her to wait for me in Green Harbor three days, bring me up to Kings Bay where I wanted to cover also the arrival of General Nobile's dirigible, "Italia," and to return to Norway afterwards.

However, while I was busy photographing Wilkins, "Mina" got caught by ice and had been carried with it out of sight of Green Harbor and she did not reappear until five days later. In the meantime, the "Italia" had reached Kings Bay. Nevertheless I proceeded on "Mina" to Kings Bay, a trip of 24 hours, took there the first pictures of Nobile, in Spitzbergen, boarded there the M/S "Hobby," which had been in the service of General Nobile since March and was returning now to Norway. A day later the "Hobby" reached Green Harbor and early in the morning, May 10th, we could see in the distance a man walking on snow shoes over the rough packice toward the "Hobby."

It was Wilkins coming to see the captain and to make arrangements for taking him, his flying machine, "Lockheed," and pilot, Mr. Eielson, on board to Norway. The agreement was soon reached and the "Hobby" with Wilkins on board went along the ice edge to look for a suitable landing place on the ice for "Lockheed." Such a place was found near Advent Bay and on May 10th at 10:30 P. M. we noticed the "Lockheed" flying above the beautiful snow and ice-covered Advent Bay mountains. Making three circles in the air around the ship the "Lockheed" made a graceful landing along side of "Hobby." Sharp at midnight they were lifted up on the "Hobby's" deck and at 2 P. M. on May 11th we started our journey back to Norway, Captain Wilkins with a record of his wonderful heroic and historic flight from Point Barrow to Spitzbergen and I with fine and exclusive pictures.

The last good-bye of Wilkins to Spitzbergen was impressive and in a way dramatic. Three Advent Bay inhabitants had come to the "Hobby" on a dog-sled of ten husky Greenland dogs to shake hands with Wilkins and to bid him farewell. When "Hobby" was leaving the ice edge heading towards the south, the Advent Bay-ers, waving their last good-bye, disappeared gradually into the blending, endless ice fjord, brilliantly lighted by the Midnight Sun.

The trip back to Norway on the "Hobby" was agreeable, the weather was fine and we reached Tromso in four days. Such is the life of a camerman.

To the story I forwarded you from Riga, I want to add the data about the shipping of the Wilkins story to America, as I believe it was unique in the matter of speed in news reel work. The story runs like this: On May 12th, at 2 A. M., the "Hobby" left Advent Bay, Spitzbergen bound for Tromso, Norway, with Captain Wilkins and myself on board. It goes without saying that I had competition on the Wilkins story and, therefore, I had to make all IMPOSSIBLE speed to get my pictures to Paris to catch the Aquitania, leaving Cherbourg on the 19th of May. I did it. Myself and the stuff was in Paris on May 18th at 6 P. M. The film reached New York May 25th early in the morning, thus having traveled the enormous distance from Spitzbergen to New York in but thirteen days and five hours. To make this speed I used for transportation all kinds of means and ruses—the fast Norwegian mail boat, ordinary row boats, autos, fast motorboats, railroads and airplane, making short but straight cross-country cuts wherever possible. It was a mad race.

Later on came the hoped-for news from New York:

"Heartiest congratulations; Wilkins story clean scoop."

This is the greatest reward a camera-reporter can expect to get, and after that all worries, hardships and physical sufferings are soon forgotten.

Fox's New Laboratory

June 29th, 1928, was a great day for Mike Leshing, superintendent of laboratories for the Fox Film Corporation.

It was the occasion of the laying of the corner stone of the new Fox laboratory and the event marked the attainment of one of the ambitions of Mr. Leshing's career—the construction of a laboratory which should be the last word in the scientific evolution of the photographic art.

Such a laboratory is this new Fox improvement, according to this description broadcast by the studio.

"In this new laboratory all of the obsolete methods are to be abandoned. There will be no hand manipulation. The various operations will be automatic and continuous from the time the reel leaves the cameraman's magazine until the finished and dried reel is delivered at the end of the machines to be installed. Time and temperature controls will be automatic.

"Refrigeration and air conditioning plants together with every other device science has designed to maintain perfect conditions for the manufacture of films will be installed in his new laboratory.

"When one learns that last year Fox Films handled more than enough film, if placed in one continuous strip, to girdle the globe at the equator, the task which faces the laboratory equipment and personnel grips the imagination. Two thousand miles of film per month; 25,000 miles per year!

"Under this roof also will be carried forward a large amount of experimental development and productive efforts of that comparatively young child of the cinema family—**Movietone.** Tremendous strides have been made to date, and even greater strides are to be made in the future."

Saved from the Arctic

Ex-Secretary Charles G. Clarke, of the A. S. C., Returns Home After Being Lost in Alaskan Wastes Three Weeks

Captain Robertson (right) and Clarke, A. S. C. (left), just after being found by Nienmen. The latter's plane in background. Eighteen days' growth of beard and lips swollen and cracked from eating snow

In May, 1928, the Fox Film Corporatoin sent an expedition into Alaska to get local color and to film whaling scenes. In the party were L. Virgil Hart, business manager; Captain Jack Robertson, Alaskan guide and cameraman; Ewing Scott, costumes and properties; Ray Wise (Eskimo), interpreter and camera assistant, and Charles G. Clarke, A. S. C., until recently secretary of the organization.

On May 13th the party departed for Point Barrow in two planes, and late the same day were forced down by fog on a frozen lake. On May 14th the plane piloted by Noel Wein got away with Mr. Hart, but Russell Merrill, the pilot of the other plane, found it impossible to get off and was marooned with Robertson and Clarke.

Plane carrying part of the Fox Film party crossing the Endicott range, Alaska. This gives a fair idea of the country in which Clarke and Robertson were lost. A forced landing in the mountains usually means fatal disaster.

Clarke and Robertson started to hike back to Barrow, a distance of 100 miles, on May 22nd, but Merrill had stayed by the ship in hopes of getting it off.

From this point we quote from the "DAILY NEWS MINER" of Fairbanks, Alaska:

"Merrill used a funnel to dig a 30-foot runway, but when he opened up the motor the plane nosed over, bending the propellor. The three men believed Wien had never reached Barrow and their only chance was to start out on foot. After Merrill nosed over he carefully drained the oil, covered his engine and with one cup of cooked rice began the long walk. Robertson and Clarke had half a package of raisins and two emergency cans of chocolate rations. Robertson's stomach rebelled against the chocolate, however, and raisins formed his only article of diet. As a matter of fact, all three men soon reached such a point of exhaustion that despite the fact they lived on almost nothing they were not hungry.

Merrill carried a pistol with which he shot nine lemmings, a large species of rodent. These he ate raw and they and the rice made up his larder for ten days. When found he had only half a lemming in his provision can.

Merrill Found

John Hegness had joined the search for the lost flyers. One day he found the tracks of two men in the snow and followed them from Smith Bay. Merrill had also found the tracks and was following them. Hegness drove his dogteam over 100 miles this day.

When he was about 50 miles from Barrow he saw something which resembled a polar bear. Coming closer he saw it was a man and was to learn soon it was Merrill. Hegness was about 200 feet away when Merrill lay down in the snow, and by the time he came up the flyer was sound asleep. He had done this for days—walking until he was exhausted, falling asleep almost in his tracks and then, awakened by cold, trudging forward once more.

(*Continued on Next Page*)

Both planes forced down on a frozen lake one hundred and fifty miles from Point Barrow. Wein's plane in the foreground was able to get away with Virgil Hart, but Merrill's plane in background was forced to remain here a month. Robertson and Clarke remained here nine days before starting to walk. Merrill following two days later. Note barrenness of the country

When Hegness awakened him, Merrill said, "Hello, where are you going?"

"To Barrow," Hegness replied.

"What's the chance of bumming a ride?" asked the flyer.

When, just to see what would happen, Hegness told Merrill he had too big a load to take him in, the flyer seemed discouraged but not surprised, and made ready to resume his hike. Then Hegness quickly explained he was out especially to find the flyers, and after making some soup for Merrill bundled him in the sled. He soon heard the flyer groaning and realized he was becoming snow-blind. Merrill had snow glasses but when walking in fog took them off in order to keep to the trail and this soon affected his eyes. Hegness raced to Barrow as quickly as possible and Merrill was placed in the hospital. He is still weak but will be able to fly his plane out in a few days. While Clarke's and Robertson's faces were made raw and bleeding Merrill escaped this by rubbing over his face and hands some seal oil which he found in a cache on the coast.

CHARLES G. CLARKE

Clarke and Robertson were found before Merrill. On May 29 Wien and Nieminen had flown to Merrill's plane again and when Nieminen was returning he saw two men on the trail. Private Richard Heyser, U. S. Signal Corps, was with him and he landed on a beach. The two men were placed in the hospital, after which Nieminen returned to the beach for Heyser.

The two men had been walking nine days and were so exhausted they were ready to give up hope. The tendons in Clarke's feet had given out and for days they had supported each other as they walked. Both they and Merrill had seen the searching planes several times previously, but despite their frantic signals they were not sighted. Clarke and Robertson were overjoyed when they saw Nieminen swoop down to land.

Bring Plane Out

Two more trips were made to the lake—one to bring out equipment and the other for the plane. Wien, Nieminen and Hart flew to the lake in the Stinson. A propeller left at Barrow by Wilkins was placed on the Anchorage plane and fifty minutes from the time of arrival the plane was in the air. By this time all snow was gone and the clear ice made the take-off easy. The plane is now in Barrow and Merrill will fly it home. Scott and Robertson will go with him to Wainwright and Wien believes that Heyser will also come out.

Their hardships left visible effects on Merrill, Clarke and Robertson. Merrill lost 25 pounds, Robertson 30 and Clarke 40.

Wien, Nieminen, Wise, Hart and Clarke left Barrow Thursday. They stopped at Wainwright overnight, flying the next day to Kotzebue, where they landed in a heavy fog. The flight to Fairbanks was continued with one stop at Ruby.

From the time the flyers reached the Arctic, there were 24 hours of daylight, with the sun far above the horizon at midnight.

The Editor further quotes from Mr. Clarke's own personal diary of the trip, which document is so interesting it is regretted that it cannot be printed in full:

"May 28th: Monday.

"We followed the shore all morning and twice saw stakes set up in a row that seemed to indicate the way across the bay. As we did not know where we were, and ignorant of the method of picking up signs from the posts, we thought it best to follow the coast and avoid a possibility of being lost in the Arctic sea. About noon we saw ahead the signs of a camp with a cache, frames of boats, and several underground igloos. We cut the snow away from the door of one of these and entered. In the last compartment we found a stove, kindling and wood, so we made a fire. There were cooking utensils and some dehydrated onions and potatoes, so I started to stew up a mulligan. Also found some tea, and by washing out a can that had once contained sugar we rescued enough to sweeten our tea a bit. This shelter was like heaven. The Captain had a good sleep—his stomach was sapping him considerably. I had trouble keeping the fire going as the wood was damp and the stove didn't draw well, so I had to stay awake and keep it going—aided by some coal oil, found in a lantern. We washed up and dried out our socks and finally the mulligan was done and it surely tasted great. We stayed here until midnight, and after putting the place in order, as we found it, started out again. It was snowing and cold but we were rested and didn't feel we should linger or delay on the trail when we needed to get help back to Merrill as soon as possible,—so we went on, following the coast, which became less distinct as we progressed.

"May 30th: Wednesday.

"Kept the North coast all day. About 6 A. M. sun came out and was clear and warm most all day. The sun was a great help in keeping the course as there was little else to guide us and the warmth was mighty tempting to lie down and sleep. I had not had a wink of sleep since leaving the place, but I thought it extremely dangerous for either of us to fall asleep, for the other might doze off and we would freeze to death or at least lose some toes and fingers. Captain was dragging way behind now because the food didn't help him any and he was suffering from his stomach. My legs didn't bother me much except when I would rest, which I had to do while Captain was catching up and resting. Then they would stiffen up and I would have to hobble around until under way again. I felt encouraged to know that I had the spirit to fight it out and not lay down and die out there. I felt that this was a great turning point in my life.

"May 31st: Thursday.

"The sun was with us most all night and at midnight it was well above the horizon, due North. Captain seemed to stop longer and more often and I talked to him like he did to me that night when I thought for a while I was out. We simply had to keep fighting,—we had nothing left to eat but the crumbs of the Rye Crysp. I thought that perhaps some warm water might relieve him, so using the rolled-up bits of the cardboard carton that had contained the Rye-Crysp for fuel, I was able to heat up enough snow to make a small can of water. Stirring up some crumbs in this made a palatable gruel which seemed to help him. Once he frightened the life out of me, because after a rest it took me a few moments to get under way, get a compass bearing, wipe out my goggles, etc., so I would generally start a head, and Captain would doze until the last moment. When, at about what I figured, was the edge of hearing distance, I would call him and he would acknowledge by waving his hand. I would then walk on for quite a distance, feeling that he was walking and catching up with me, as he walked faster. One of these times I saw him acknowledge the call so I walked on. After a mile or so I didn't see him, so I slowed up, but kept going. Still he didn't appear. Could he be asleep?—I would have to retrack those hard-earned, painful steps to wake him. I plugged on praying to see him show up. It seemed it must be miles back, and I couldn't go on without him, so I started back and finally I heard a distant "Yoo-Hoo"—God! how I was relieved! It seemed he had delayed until the last minute, and I was not in sight. He saw some posts that I had seen, but as they were too much off the course to the West, I had passed them by. I saw him head for them, so I went back in that direction. I doubled back about a mile and a half, but it was worth it. He stopped at the posts,

(*Concluded on Page 27*)

Use of Tachometers

Their Use Becoming General in All Technical Departments of the Motion Picture Industry---Transaction S. M. P. E., Sept., 1927

By Nicholas M. Trapnell

Speed indicators, when first used on projectors in motion picture theaters, were considered a luxury, and were only found in a few of the best first-run houses. The advantages to be gained by the use of accurate speed indicators, or tachometers, soon became apparent, however, and today the projectors in nearly every first-run house are equipped with them.

It is only by the use of tachometers that the modern theater is able to maintain an exact schedule, that the projectionist is able to run his projector at a definite, constant speed which will give the best results on the screen, and that the orchestra leader is able to correctly time his score; but it is not only on projectors that tachometers have made possible improvements in technique which would otherwise have been impossible.

Tachometers are now in general use, or are coming into general use, in other phases of motion picture production and exploitation, such as on cameras, where the importance of a standardized constant taking speed has long been recognized and insisted upon by this body; on film developing and printing machine and where this time must be varied with changes in the strength of the solutions; and more recently, in the two systems of "talking motion pictures," the Vitaphone and Movitone, where the sound recording device must be perfectly synchronized with the camera.

There are probably other phases of the motion picture industry where tachometers are now considered a luxury but where they will soon become a necessity, also there are probably phases where tachometers are not used at present, but where much could be gained by using them. My object in coming to this meeting is two-fold, to discuss present uses of tachometers and to get suggestions and information on new applications of the tachometer in the motion picture field.

There are certain general conditions which must be met by the tachometer manufacturer in nearly all applications of tachometers to motion picture work, and they may be briefly described as follows:

The tachometer must be light and compact. This is especially important on all portable equipment, such as cameras, where any increase in weight or bulk is undesirable.

It must require only a very small amount of power to drive it; because on most motion picture equipment there is very little surplus power available for driving the tachometer. This is true on motor driven as well as hand-driven equipment, since the size of the motors is usually kept to a minimum.

The accuracy must remain constant and must not be affected by wear of the mechanical parts. A tachometer whose accuracy decreases with increased wear of its parts is worse than useless after a short time in service.

It must be reliable and require practically no attention; because most projectionists and cameramen have not had special training necessary to enable them to make repairs on tachometer equipment, if they had the time.

The tachometer readings must often be transmitted to a point remote from the machine whose speed is being measured, as on projectors or remotely controlled cameras, and it is often necessary to have more than one indicator connected to the same machine, as on projectors in theatres where one indicator is mounted in the projection-room, one in the orchestra pit and sometimes a third in the manager's office. The tachometer equipment should be so designed that this can be done easily and cheaply.

We now come to a consideration of the different types, or classes of tachometer equipment available, and the degree to which they meet the above-mentioned conditions; which is a measure of their suitability for motion picture work.

Tachometers may be divided into four general types or classes, according to the principles on which they operate.

First—The mechanical type, which usually consists of a centrifugal device having a rotating mass whose position is dependent on the speed at which it is rotated and which is mechanically connected to a pointer moving over a scale calibrated in revolutions per minute, or other suitable units

Second—The hydraulic type, consisting of a small rotary pump which circulates liquid, usually an oil or glycerine, through a closed circuit in which is an orifice of definite diameter. The pressure of the liquid in the circuit between the pump discharge and the orifice is directly proportional to the speed at which the pump is driven and the speed is measured by means of a pressure gauge calibrated in revolutions per minute.

Third—The magnetic drag type, in which a rotating permanent magnet tends to deflect an armature hung on pivots. The deflection of the armature is resisted by a spiral spring and the amount of deflection is proportional to the speed at which the magnet is rotated. The armature carries a scale which indicates the speed of rotation.

Fourth—The electric type, which consists of a small direct-current generator or magneto, driven from the device whose speed is to be measured, generating a voltage directly proportional to its speed, and connected by means of wires to a voltmeter calibrated to read in revolutions per minute, feet per minute, or other suitable units.

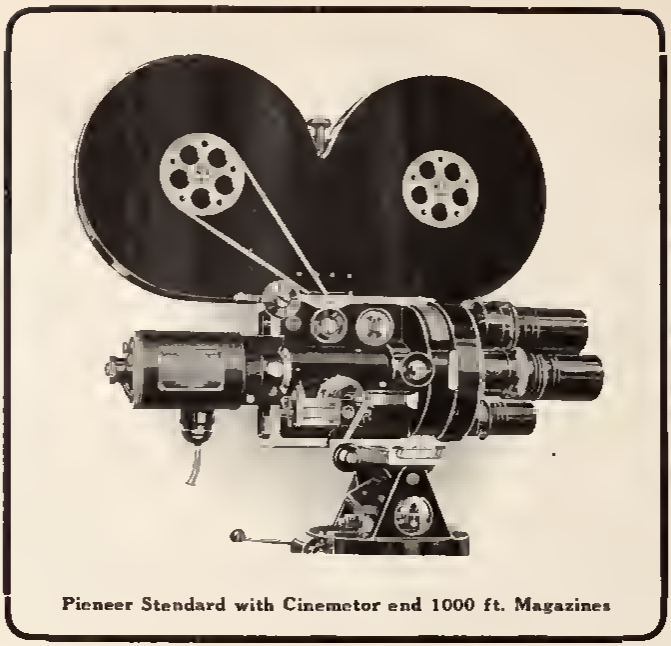
The mechanical type of tachometer, although it can be built in a very light and compact form, is usually far from being accurate in its reading, due to wear of its parts; and it is impossible to transmit its readings to a point remote from the machine whose speed is being measured. In spite of these defects, however, it is used to some extent in motion picture work.

The hydraulic type, on account of its large size and weight, and the large amount of power necessary to drive it, is never used in motion picture work.

The magnetic drag type is very little used in this work because it is usually necessary to drive it by means of a flexible shaft which consumes considerable power, is subject to wear, and adds materially to the weight and inconvenience of portable equipment.

The electric type is by far the most suitable tachometer for most motion picture work. It can be made very light and compact, its accuracy is not affected by wear of its mechanical parts, it requires an extremely small amount of power to drive it; and when properly designed and constructed requires no attention of any kind after installation. Its readings can be easily transmitted to any distance by extending the connecting wires between the magneto and indicator; and as many indicators as desired can be run from the same magneto.

There are now two classes of electric tachometers available for motion picture work. In the older class the magneto generates a very low potential, about eight-tenths of a volt per 1000 revolutions per minute, has a high internal resistance, about 70 ohms, a low output, and a low resistance in the external circuit, which includes the indicator and connecting leads. This class



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has several disadvantages. It is subject to error due to changes in resistance of the external circuit which may be caused by faulty electrical contacts or connections, or extreme temperature changes. Because of the likelihood of error due to resistance changes, the brushes which bear on the commutator of the magneto are made of a soft con-corrosive alloy to prevent corrosion at this contact point, and since this is a poor bearing metal, the brushes soon wear out. The magneto, indicator and connecting leads must all be adjusted and calibrated together and are not interchangeable. The indicators, because of the low output of the magneto, must be very sensitive which makes them delicate and subject to damage due to vibration, etc. This condition is aggravated when more than one indicator is operated from one magneto.

In the newer class of tachometers, the magneto generates a comparatively high potential, 3 to 6 volts per 1000 revolutions per minute; has a low internal resistance, about 20 ohms, high output, and a high resistance in the external circuit, nearly all of this resistance being in the indicator This class of tachometer, because of its high potential and high external circuit resistance is not so much subject to error due to poor electrical contacts or connections. The connecting wires may be made any length or diameter within reason, because their resistance is a very small percentage of the total resistance of the circuit. The magnetos and indicators require no special adjustment together with the connecting wires and are all interchangeable. The indicators are more rugged, and as many indicators as desired can be connected to one magneto because of the higher current capacity of the magneto.

I will now describe a good example of the latter class. The magneto, which is part of the tachometer, is a direct-current generator having a permanent magnet field and a revolving armature provided with a commutator on which bear the brushes for collecting the current generated in the armature.

The distribution and uniformity of the magnetic flux across the air-gap is governed by pole pieces of proper shape and the permanency of the magnetic circuit is obtained by an exceptionally small air-gap and a magnet made of special steel, specially treated and aged.

The brushes and commutator segments are constructed of special hard, non-corrosive alloy, having an exceptionally long life. The brushes are definitely adjusted for proper position when the magneto is assembled. These and the commutator do not require any attention, except cleaning at yearly intervals, and the brushes are so arranged that they can be easily removed and replaced.

The armature is constructed so as to have unusual mechanical strength and is mounted in self-aligning ball bearings which permit extremely free rotation and which require no lubrication or attention of any kind. These are the only moving parts in the magneto.

The magneto is adjusted to generate an E. M. F. of 6 volts per 1000 R. P. M. and to have an internal resistance of exactly 20 ohms. The voltage generated is directly proportional to the speed; that is the speed-voltage curve is a perfectly straight line. The terminal voltage may be adjusted to an exact value under different conditions of indicator load by means of a magnetic shunt which can be operated from the outside of the magneto case. After making final adjustments the shunt is sealed.

The magneto should be so driven that its normal speed is between 1000 and 2000 R. P. M., giving a normal voltage of between 6 and 12 volts. This can be done by the proper size and arrangement of driving pulleys, gears, etc.

The magneto is compact and light, and can be mounted in any position. It can be driven from the machine whose speed is to be measured by means of belt and pulleys, spur gears, or direct connection to some shaft or rotating part running at a suitable speed. The power necessary to drive it is slightly more than 1/746 horse power (one watt) which is less than the power required to drive any other tachometer at present on the market. Its accuracy is guaranteed to be within one per cent, although the accuracy will be greater than this under ordinary conditions. That this accuracy remains constant has been proven by severe laboratory tests.

The voltmeter indicators used as part of the tachometer are of various forms and sizes to suit different conditions. The form commonly used with motion picture projectors is a fan-shaped instrument having a long and easily read scale and at the same time occupying but little space. It is designed to be mounted on a panel by means of two studs on the back of the instrument case; these studs also act as binding posts for the connecting wires to the magneto on the projector. The indicator has a double scale. The upper scale shows the film speed in feet per minute, while the lower scale shows the time necessary to project a thousand feet of film when running at the speed indicated on the upper scale.

All indicators are adjusted to have a resistance of 500 ohms per volt; thus, an indicator designed to be used with a magneto whose normal speed is 1500 R. P. M. would be adjusted to 9 volts and would have a total resistance of 4500 ohms. This is the large resistance which eliminates the possibility of errors due to poor connections and long connecting wires.

For instance, suppose the connecting wires were No. 14 B. & S. gauge copper, having a resistance of 3.1 ohms per 1000 feet, and that the indicator is at a distance of 250 feet from the magneto. The total length of the connecting leads would then be 500 feet and their total resistance would be 1.55 ohms. This .3 per cent of the total indicator resistance of 4500 ohms and would cause an error of only .3 of one per cent in the indicator reading, which would not be noticeable.

The guaranteed accuracy of the indicators is one per cent. This, combined with the magneto accuracy of one per cent gives a guaranteed overall accuracy of two per cent for the tachometer, although the probable error is much less than two per cent.

In conclusion, I might say that there are probably many new appliances in motion picture work where tachometers could be used to advantage, such as in airplane photography, where several motor-driven cameras could be mounted in different locations on the plane and each camera equipped with a magento. The magnetos could be all connected, through a selective switch, to one indicator mounted in the cockpit. The speed of all the cameras could then be read and controlled from this one point. Another new and advantageous tachometer application would be on ultra-speed cameras used in scientific work by research laboratories, where the exact time of duration of the various motions or events photographed could be easily calculated if the speed of the film was accurately known.

Our Front Covers

The series of front covers reproduced from stills by members of the American Society of Cinematographers is augmented this month, August, 1928, by a beautiful and very unusual photograph caught by the camera of Mr. Curtis Fetters, A. S. C., on the sand-dunes near Yuma, California.

Mr. Fetters is classified as an Akeley camera specialist on the roster of the A. S. C., but, while a skilled operator with the Akeley, he is first of all at heart a pictorialist and nothing so delights him as to discover an unusual picture in nature's art gallery and trap it with his camera.

If THE AMERICAN CINEMATOGRAPHER had thirty times twelve front covers in a year instead of only one a month it could not begin to exhaust the wealth of art pictures produced by the talented artists of the A.S.C., but the policy of our magazine will be to continue presenting these A.S.C. gems on our front covers and the cover for September will be reproduced from a beautiful study by our President, Mr. John W. Boyle, caught by his camera at Venice, Italy.

Jack R. Young, A. S. C., writes from the Yosemite that he is enjoying his vacation immensely. He says the fish up there are about so long.

TWO DISTINCTIVE FEATURES

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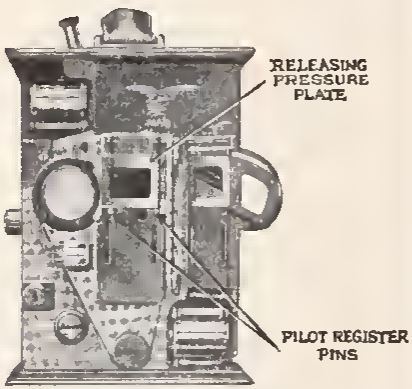

The Pilot Register Pins—working in and out of the film slot assure POSITIVE and ABSOLUTE steadiness of the traveling film. They are an extremely valuable feature for super-imposition or double exposure work with masks.

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Projection

In a recent address on the subject of better projection, P. A. McGuire, advertising manager International Projector Corporation, said in part:

With an extremely limited demand for projectors, we are compelled to manufacture practically one type of mechanism that can be used in the so-called motion picture palace and in the smaller theatres throughout the country. We must design and manufacture projectors that give a clear, steady picture and are dependable under all conditions. The industry demands first—equipment which permits owners to operate their theatres 365 days in the year from early morning until late at night and give a perfect performance under all conditions.

Perhaps the greatest advance that has been made in motion picture projectors in recent years, has been the development of labor saving devices which give the projectionist more time and more opportunity to control the presentation of the picture, and to that extent are a definite step in the direction of better projection. These are the practical problems we must meet and we cannot give too much consideration to ideas which may be of extreme interest from a theoretical standpoint but which cannot be profitably marketed for many years because the industry is not ready to adopt them.

In spite of the fact that we are the oldest and largest manufacturers of motion picture projectors in the world, we are not a large company as compared with many of the picture producing and exhibiting enterprises of this country Although the motion picture industry, as a whole, has grown to tremendous proportions, the manufacture of projectors is still conducted upon a very limited scale. There is a demand for considerably less than 2,500 machines a year and it will easily be seen that such a low production basis does not permit large scale operation as compared with any other manufacturing lines.

Manufacturers of projectors are severely handicapped by low production basis, and this is largely due to the fact that many theatre owners are unwilling to purchase new equipment until absolutely forced to do so. Even in the repairs and replacements, many large theatre owners who are liberal in other ways are extremely economical when it comes to the projection department. . . .

One of the greatest mistakes this industry has made is to believe that projection is purely mechanical and to fail to realize that the projectionist must be a highly skilled specialist. No matter how skillful or conscientious the projectionist may be, he cannot be expected to give the best possible results with defective equipment. There are many things responsible for poor projection, but I think you should thoroughly realize that there is seldom any good excuse for inferior screen presentation.

Poor focus,—an unsteady picture,—a flickering image on the screen,—poor illumination,—travel ghost,—film breakage,—improper projection speed,—all these things spoil the illusion. The very smallest defect in projection can be responsible for spoiling the effect we have all tried so hard to secure For instance! A little dust or oil on the objective lens,—warped film,—the vibration of the projector,—a bent sprocket shaft,—film shrinkage,—imperfect perforations in the film,—unsteady arc,—dirty condensers,—insufficient current,—punch-marked film,—all of these are contributory forces which may result in poor projection and a destroyed illusion.

All these defects are preventable if the theatre owner is willing to take a reasonable interest in the work of the projectionist.

Norman DeVol, A. S. C., assumed the post recently vacated by Ex-President Dan Clark of the A. S. C., with Tom Mix on the latter's new production program with F. B. O. Curtis Fetters will do the Akeley and Still work, and Cliff Thomas will shoot second. "The Pony Express," directed by James Horn, will be Mr. Mix's first vehicle.

Membership of the A. S. C. to Date--July, 1928

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August, Joe—Fox.
Abel, David—DeMille
Arnold, John—M.-G.-M.

Badaracco, Jake—DeMille
Bolboni, Silvano—
Barlatier, Andre—M.-G.-M.
Boyle, Chas. P.—Caddo
Boyle, John W.—
Bridenbecker, Milton—Universal
Brown, Jas. S., Jr.—F. B. O.
Benoit, Georges—Mauriee Tourneur, Paris
Brotherton, Joseph—Universal.

Carter, Claude C.—Australia.
Cline, Wilfrid—Universal.
Cronjager, Edward—Lasky.
Clark, Daniel B.—Fox Studio
Cotner, Frank M.—
Clarke, Chas. G.—Fox.
Cowling, H. T.—Eastman Kodak Co., Rochester, N. Y.
Crockett, E. J.—Sennett.

Davis, Chas. J.—Fox Movietone, London.
Draper, Lauren—Sierra Pictures.
Daniels, Wm. H.—M.-G.-M.
Davis, Harry—Fine Arts
De Vinna, Clyde—M.-G.-M.
DeGrasse, Robert—F. B. O.
Diamond, James—
Dored John—Paramount News, Riga Latvia
Dubray, Jos. A.—
Du Par, E. B.—Warner's Vitaphone
Max Dupont—
Dean, Faxon M.—

Evans, Perry—
Edeson, Arthur—Fox Studio
Fabian, Max—M.-G.-M.
Forbes, Harry W.—Stern Bros.
Folsey, George Jr.—
Fischbeck, H. A.—Lasky
Fisher, Rosa G.—Universal

Gerrard, Henry William—Lasky.
Gheller, Edward—
Gerstad, Merritt B.—M.-G.-M.
Gilks, Alfred—Lasky.
Gray, King D.—
Guissart, Rene—Fox Elstree Studio, England
Good, Frank B.—Ken Maynard—First National
Griffin, Walter L.—Metropolitan
Gaudio, Gaetano—Caddo Productions—Met. Studio

Hallenberger, Harry—Lasky.
Hilburn, Percy—M.-G.-M.
Hunt, Roy—Lasky
Hyer, William C.—Educational.
Horne, Pliny—
Haller, Ernest—Robt. Kane Productions, Hollywood

June, Ray—Gotham Prod.
Jackman, Floyd—Warner Bros.
Jackman, Fred W.—Technical Director, Warner Bros.
Jackson, H. A.—Metropolitan
Jennings, J. D.—First National

Kershner, Glen—
Kirkpatrick, H. J.—Universal.
Kornmann, Anthony—
Koenekamp, H. F.—Warner Bros.
Kurrle, Robt. E.—Tec-Art

Linden, Eddie—Universal
Longenecker, Bert—Artclass Prod.
Lyons, Chester—Fox
Lyons, Edgar—Stern Bros.
Lundin, Walter—Harold Lloyd, Metropolitan
Lockwood, J. R.

Marley, J. Peverel—DeMille.
Mackenzie, Jack—Douglas McLean, Lasky.
Marsh, Oliver—M.-G.-M.
Marshall, Wm. G.—Lasky
Martin, H. Kinley—Lasky.
Miller, Arthur—De Mille
Miller, Ernest W.—Tiffany-Stahl.
Miller, Virgil E.—F. B. O.
Mohr, Hal—Universal
McDonnell, Claude—London, England
MacWilliams, Glen—Fox
Meehan, Geo.—
Morgan, Ira H.—James Cruze, Metropolitan
Musuraca, N.—F. B. O.
Milner, Victor—Lasky

Neumann, Harry C.—Universal
Norton, Stephen S.—

Oswald, H. M.—
O'Connell, L. Wm.—Fox.

Powers, Len—Hal Roach
Perry, Paul P.—Sennett.
Perry, Harry—Caddo Prod. Met. Studio
Palmer, Ernest—Fox
Polito, Sol—First National

Rics, Irving G.—M.-G.-M.
Rosson, Hal—Paramount
Roos, Len H.—c/o Pathe Review, Sidney, Australia
Rose, Jackson J.—Universal.
Rosher, Chas.—Mary Pickford—U. A.
Ries, Park J.—

Schoenbaum, Chas.—Lasky
Scholtz, Abe—
Smith, Harold I.—

Smith, Leonard—Educational
Stengler, Mack—F B O
Stevens, Geo—Hal Roach
Struss, Karl—First National
Stumar, John—Universal
Stumar, Chas—Universal
Sharp, Henry—M-G-M
Schneiderman, Geo.—Fox Movietone
Scott, Homer A
Seitz, John F—Corinne Griffith, First National.
Snyder, Edward J—

Tannura, Philip—F B O
Tetzlaff, Ted—Chadwick
Tover, Leo—United Artists
Turner, J Robert—Educational.
Tuers, Billy—First National
Tolhurst, Louis H—Microscopic Pictures.

Valentine, J A—Fox Studio
Van Enger, Charles J—Fox
Van Trees, Jas C—Columbia
Van Buren, Ned—Eastman Kodak, Hollywood
Vogel, Paul E—M-G-M

Wagner, Sidney C—Fox
Walker, Joseph—Columbia.
Walker, Vernon L—Warner Bros
Warren Dwight W—Educational Studio
Wheeler, Wm—Christie Studio
Williams Wm N.—
Widen, Carl—Tiffany.
Wrigley Dewey—Metropolitan
Wyckoff, Alvin—Caddo Productions, Metro Studio
Wells, Conrad—Fox
Wenstrom Harold—
Whitman, Philip H—Directing Sennett Studio
Wilky, L Guy—
Warrenton Gilbert—Fox Studio

Young, Jack R—M-G-M

Zucker, Frank G—New York, Movietone

HONORARY MEMBERS

Edison, Thomas A, Orange, N J
Eastman, George, Rochester, N Y
Webb, Arthur C—Attorney

SPECIAL PROCESS AND TRICK CINEMATOGRAPHERS

Baker Friend—Fox Studio
Binger R O—M.-G.-M
Cully, Russell—Lasky
Knechtel, Alvin V—First National
Pollock, Gordon B—Lasky.
Mammes, Ray—M-G-M
Edouart, Farciot—Lasky
Flora, Rolla—Lasky.
Lipstein, Harold—M-G-M
Pomeroy, Roy—Lasky
Roberts, Oren W—Lasky
Shearer, Douglas G—M-G-M
Stull, William—Stull Prod
Smith, Arthur—Lasky.
Smith, Jack—Bangkok, Siam
Williams, Frank D—Special Process

AKELEY CINEMATOGRAPHERS

Bennett, Guy M.—
De Vol, Norman—Tom Mix—F B O
Dyer, Elmer G
Fetters, C Curtis—Tom Mix—F. B O.
Calezio, Leonard T—
Hickson, John T—
Hoke, Ira B—
Marshall, Chas. A.—M-G-M
Marzorati, Harold J—M-G-M
Novak, Jos. J.
Ramsey, Ray Lloyd—
Shackelford, J B—Lasky.
Stout, Archie J—Lasky.
Steene, E Burton—Caddo Prod.—Met. Studio

NEWS CINEMATOGRAPHERS

Parrish, Fred—Fox Colorado Springs

STILL PHOTOGRAPHERS

Alexander, Kenneth—United Artists—D W Griffith
Archer, Fred R.—
Fryer, Elmer—Warner Bros
Kahle Alexander—
Mannatt Clifford—M-G-M
Parker, Robt. M—
Richee, Eugene Rahert—Lasky.
Rowley, Les—Lasky
Stapp W B—
Sigurdson, Oliver—
Van Roasem, Walter J—James Cruze, Inc Met Studio

SECOND CINEMATOGRAPHERS

Bader, Walter S—M-G-M
Bauder, Steve L—M-G-M
Baxter, George—De Mille
Bennett, Monroe—
Borradaile, O. H—Lasky.

Chaney, George—United Artists
Chewning, Wallace D—M-G-M
Cunliffe, Donald—

Doolittle, Jas. N—First National
Drought, Jas. B—Universal.
Dunn, Linwood G—Metropolitan Studios
Dyer, Edwin L—M P A Studio, New Orleans

Fitzgerald, Edward—M-G-M

Giridhan, Jas N—F B O
Greene, Al M—
Greenhalgh, Jack—F B O
Guffy, G Burnett—De Mille

Haas, Walter—
Harten, Charles—New York
Head, Gordon G—
Hendrickson, Fred S—Lasky
Huggins, L. Owens—

Julian, Mac—

Keyes, Donald B.—First National
Kesley, Joseph—

Landrigan, John S—Lasky
Lang, Charles Bryant—Lasky
Longet, Gaston—F. B O
Lanning, Reggie—Lasky.
La Shelle, Joe—
Laszlo, Ernest—Tec-Art
Lindon, Curly—

Martin, Robt G.—F. B O—Ralph Ince Prod
Marta, Jack A—Fox.
Merland Harry—Lasky
Mols, Pierre M—M-G-M
MacLean, Gordon—M-G-M.

Nogle, Geo G—

Pable Ted—
Palmer, Robt—M-G-M
Parsons, Harry—
Pittack, R. W—Lasky
Planck Robt H—Columbia
Pyle, Edwin L—

Ragin, David—Fox.
Rand, Wm—Lasky
Ray, Bernard B—
Redman, Frank—DeMille
Rees, Wm. A—Fine Arts.

Schmitz, John J.—
Schopp, Herman—
Shepek, John, Jr.—Educational
Silver, John—
Smith, Jean C—De Mille
Stine, Harold E—De Mille

Tappenbeck, Hatto—Fox
Terzo, Fred—
Thompson, John—

Unholz, George—Sennett

Van Dyke, Herbert—M-G-M
Van Enger, Willard—Warner Bros Vitaphone

Wagner, Robt—First National
Walters, Joseph J.—F. B O
Westerberg, Fred—De Mille
Williams, Alfred E—Lasky
Rex, Wimpy—Lasky.
Witzel, E L—Universal

Our A. S. C. Outposts

The Pageant of the Far East As Caught by the Camera Of a News Cinematographer---Reel III

By Len H. Roos, *A. S. C.*

When I looked out of the porthole of my cabin, at daybreak, I found we were tied up at TANDJOENG PRIOK, JAVA. I was dressing, preparing to go up to Weltevreden, the residential section of Batavia, when I was handed a cablegram instructing me to stop in Java. I hastily packed my baggage and after getting my tickets validated by the purser, disembarked and registered at the Hotel Nederlanden, in Weltevreden, seven miles from the dock. This hotel is situated in Rijswijk and, facing one of the main canals, is a very comfortable place to stop. The food is excellent and the hotel is spread out in one-story rooms and lounging verandas which give the impression of coolness. My room is about one block from the dining room along a palm avenue, and when I first walked from the room to the main part of the hotel it seemed so far I thought at first it must be a sleeper jump.

At any time you can find natives washing clothes in the canals. They beat the clothes on a rough board and spread them in the sun until they are clean. After seeing them do this for the first time you rush back and look over your things to see if they have left any buttons on anything. Anyone visiting Batavia should call on Mr. Van Varda, the director of the Government Tourist Bureau. Mr. Van Varda is a great believer in motion pictures as a means of attracting tourists to his country and will go out of his way to arrange things for the visiting cinematographer.

Storing film in the tropics and being so far from a laboratory, it is necessary to make daily tests. I have tried several test tanks but I find the handiest are two Premo No. 2 film pack tanks. I have two tin cylinders about 1½ inch smaller in diameter than the tanks. One Eastman Premo No. 2 tank powder to a tank of water (temperature 65 degrees) gives average results, developing for twenty minutes. By this I mean that if test negative comes out of the tank in twenty minutes and after fixing looks O. K., then your exposure is pretty right. Over and under exposure can be detected by this time and temperature method. It is a simple matter to shut yourself up in a wardrobe or dark closet and fasten about two feet of test up and down the cylinder by means of paper clips, you will be able to get about seven of these two-foot tests on each cylinder. After twenty minutes of developing you again enter the dark wardrobe and transfer the cylinder to the fixing bath in the other tank. Developing powders for these tanks are easy to carry, and I have found them quite accurate for testing. During the heat of the day a haze arises and it is best to photograph before 10 o'clock and after 3 o'clock.

From two to four in the afternoon nearly every business house closes and everyone goes home and takes a nap. I couldn't see the necessity of this at first as in Singapore they keep regular hours, but after seeing a Java Dutchman eat his lunch the two-hour nap is obvious. He gorges for about one hour on Ryz Tafel and then goes to sleep it off for two hours. A smattering of the Malay language is a necessity if you go about alone as natives speak only Malay and most of the whites speak Dutch. After attempting to read a few of the Dutch signs on the buildings and streets you purchase an English-Malay pronouncing dictionary and keep away from the Dutchmen.

When I cleared my camera at the customs they took the number of every piece and made me leave a deposit of a considerable number of Guilders. All I have to show for four hours' work and a large amount of money is a long paper written in Dutch. They said I would get my money back when I leave—we'll see.

A favored Christian name for a Malay boy is Jesus I have a Malay assistant whose front name is Jesus and whose ability as an assistant is nil minus 2. After he persists in making the same mistake several times during the day, he thinks I am calling him when I speak his name and add "what an assistant!"

Picture theatres in Weltevreden have two performances a night. The first show starts at seven (for those who want their pictures before dinner) and the second at ten. I went to see "Subway Sadie" at the Oost Java Bioscoop, an open-air theatre with a marble floor, wicker chairs and tables and very good projection, with the exception that they have only one machine and the screen is set at an angle. "Chee-chucks" chase mosquitos and other insects across the screen and birds and bats fly about. If it starts to rain you retire to the rear which is under cover. When the lights went out they ran a slide "Welkom" (everyone is, who pays the one Guilder and eighty cents admission fee). An English news reel followed by a Christie comedy and five reels of the feature made up the first half of the show when they ran another slide saying "Pauz." No one did. The audience kept right on ordering drinks from the boys the same as they do every two reels when the projectionist stops his machine to change. The orchestra, consisting of one piano, is in the rear of the theatre near the entrance. The titles are in both Dutch and English and the audience is made up of Halfcasts and Dutch. The performance finishes about midnight.

I had some shots to do from a car and had to have the wind-shield off. I forgot to mention before that I have the champion horn-blowing driver in all of Java. He can get more notes out of single-reed horn than anyone I have ever heard. There is no stopping him, and when the wind-shield came off I noticed the horn was clamped to the frame of the glass. I figured I would have a little quiet or at least a change as he would have to use the electric horn. Not that boy—No, sir—he took the horn off the wind-shield and put it on the seat beside him and honked it all the way down the road. Its no use; there is no stopping him. Some day I'll try putting water in the bulb.

I had to go to Bandoeng by rail and found the trains quite comfortable. All railway property is marked "S. S.," which means "Stasts Spoor-en Tramwegen" (you pronounce it—I'll stand here). I understand all rolling stock is hauled by American Baldwin locomotives. They have some heavy grades from Weltevreden to Bandoeng and also a very high bridge with a curve in it which I understand is very interesting to engineers throughout the world.

The Homann Hotel, in Bandoeng, is as good as anyone could ask for. I don't think I have ever been in a hotel room with more lights. There are several lights on the gallery (veranda); several in the bedroom and more in the bathroom. All of them were controlled by three double and triple switches and it must have taken five minutes to get all the lights turned off when I decided to retire. I would get one set turned off and start on the next and then turn the switch once too often or something because more would come on. I finally got them all out and went to bed thinking that the hotel office should either supply an electrical engineer with each room or give the guests a short course in electrical

engineering, awarding diplomas or licenses to the applicant after he has shown his efficiency by a test.

As Bandoeng is in the mountains it is cool at night and the water in the bath too cool for comfort. They have what they call a "hot bath." This is a nickled glass appliance, "By Professor Junkers," so it says on the name plate and requires quite as much figuring out as the light switches. When I did get it going a luke warm stream of water dribbled out of its spout. An appropriate name for the appliance would be the first syllable of the professor's name.

I visited the native theatre, which was very interesting. The admission was fifteen Guilders cents (about 6 cents in American money). Inside it was a huge place with an earth floor. Natives walked about and patronized the dozens of eating and native drink stands. On one side a picture was being screened, "Charlie Chaplin's 'The Gold Rush'," and the natives got just as many laughs out of it as any other audience in any part of the world. Farther down the theatre a native opera was being staged and, on the right-hand stage as I went in, I saw native dancers swaying to the peculiar music of the country. The place was jammed and was as interesting a theatre as I have ever seen.

The scenery enroute to Bandoeng is extremely interesting. Rice fields rise in terraces on the hills and the landscape looks like a huge checker-board. It appears as though every square inch of land in Java is under cultivation. Every time they rang the bell of the train (which was quite frequent as they have native engineers and firemen) I expected to hear, "All aboard for Natchez, Cairo and St. Louis!" The bell has exactly the same tone as the one used by the "Two Black Crows." Their record is just as popular in this part of the world as I imagine it is at home.

At all hours during the day native peddlers call at the hotels and attempt to sell a standard line of curios to the guests. They do not bother the male guests much, but concentrate on the "weaker sex." (The bird that coined that phrase never saw a Dutch lady.) The lady in the room across the road from me has frequent set-tos with them, and if a sport writer was asked to cover the affair he would probably turn in copy reading something like this:

"OUT IN THE NINTH ROUND"

"The crowd was on its feet as the boxers sparred for an opening in the center of the ring. For eight hard rounds the battle had raged, points first to one gladiator and then the other. It was anyone's fight when suddenly the White Hope stepped back and——— "In the jargon of the motion picture studios," the scene will now slowly dissolve to———." An European lady seated in a comfortable chair on the veranda of her hotel room in the Hotel Nederlanden, Weltevreden, Java. The scene is the same as the one described above, except there is no crowd and the sparring is between the "Mem" (Lady, Mistress, etc.,) and a native peddler of silks, lace and cross-stitch linen. The "Mem" has her mind set on a certain bit of lace. The argument, over the reduction of one guilder from the price, has been going on for some rounds. The peddler has handed out some snappy left-hooks (adjectives), counter blows of fractions, of a Guilder and is attempting a clinch of the sale. The "Mem" has stood her ground and retaliated with short, straight lefts and rights (Tidas) "No." Time is almost up for the peddler. If he can hold out for the odd Guilder, he is sure of a decision in this round. He changes his tactics and assumes a bored expression at the same time making a movement to repack the display on the verandah floor. The "Mem" counters this lead by picking up a book and leaning back in her chair. The peddler lands a quick chop of ten cents off the disputed Guilder but "Mem" counters this by hooking over a wicked "Pigi" (go—be off—get away). The peddler takes the count and accepts the two Guilders for the lace. The "Mem" smiles as she pays him thinking of the pleasure she will have telling her friends at home of her smartness in bargaining with the native of Java. The native smiles to himself as he pockets the two Guilders. He has had a very pleasant argument and the purse of two Guilders was his original price anyway. I reached the ring, I mean the veranda, at this stage, and might have saved the peddler punishment, if I had reached the scene of battle earlier, by throwing in the towel in the first round as I have watched the "Mem' for several days and know her ability in an argument. The peddler was arguing out of his class, but it must have been a great bout. Tomorrow, the "Mem" will have a six-round no decision argument with a seller of brass ware. It should be an interesting and exciting "go" for followers of this sport.

As this about completes my 2500 words for this month, I will strike the arc and display the slide that says:

"PAUZ"—Until Next Month.

Talkie Talk

By Phil Gersdorf

"Unless motion picture producers show more wisdom than they have in the past, the movie will go through the same phase of imitation of the speaking stage with the introduction of talking devices, that it passed through in its early history."

That is the warning sounded by Ralph Block, who is producing twelve of the twenty-eight pictures of the new Pathe program. Block is one of the few producers in Hollywood who came to motion pictures with a mature knowledge of the stage behind him. Before he entered motion pictures nine years ago, he was dramatic critic of the New York Tribune, and was also associated with the New York Theatre Guild in its early history.

"The motion picture is an entirely different form of entertainment from the stage," Block explains. "It has its own laws, its own capacities and limitations and it differs in its vital aspects. Nevertheless, stage technicians who have never had anything to do with the camera are already being imported to Hollywood to produce talking pictures. The result undoubtedly will be, for a while, a long series of movies photographed directly for stage-action, with the introduction of close-ups to provide for mechanical speech.

"Sound and mechanical devices which make dialogue a possible substitute for written titles in a motion picture, only extend the possibilities of the camera. But a lot of bad pictures will be made with dialogue before producers wake up to the fact that they are still dealing with film and camera—because the microphone is as much a camera for sound as the motion picture camera is necessary for vision.

"The idea of talking pictures may be basically sound, but to think of giving up all the advances that have been made by the movies in the past few years in the use of pantomime—which without a doubt early sound pictures will surrender—is to throw away everything of value that has been built by the best minds of the industry. The easiest way, of course, will be to reproduce the scenes, story development and business of stage plays with dialogue inserted in close-ups where it is necessary, but the public will soon tire of this kind of bastard art.

"The use of spoken dialogue certainly will intensify and add to the forcefulness and vitality of motion picture entertainment. This will be especially true when it is used to develop the ideas that the camera itself has established. But it would be unthinkable to give up the fine pantomimic humor and drama that the motion picture camera had developed to such a high degree. The use of dialogue will also decrease the difficulties that motion picture scenario writers now have in building exposition, if it is used with imaginative insight.

"Motion picture technique is no great secret, nevertheless it demands experience in its use. Where the movie will benefit greatly, however, is in the fact that these increased facilities will attract imaginations and creative intellects from among the world of writers who have hitherto refused to become interested in the screen—aside from the money they were able to get from it—because of the fact that the use of spoken language, with all its intonations, inflections and implications was denied to them."

G. E. Talking System

JAMES R. CAMERON

Continued from July issue.

Dr. Hoxie has developed three different pieces of apparatus to meet the different conditions encountered in making and projecting talking motion pictures. These are the pallophotophone, the pallotrope and the photophone. Both pallophotophone and pallotrope record sound photographically on film. The photophone is simply an attachment to an ordinary projection machine, it reconverts the photographed bands on the film into sound.

In the pallophotophone the mirror, vibrated by the speaking or singing voice picked up by a microphone, records sound directly on a film without the aid of a photo-electric cell. In the pallotrope the light from the mirror, actuated by a sound collector, falls first on a photo-electric cell. The fluctuations in current produced in the cell cause a second distant mirror system to oscillate and record light reflections as bands on a film.

Whether the pallophotophone or the pallotrope shall be used is dictated by the conditions that prevail. When it is advisable to record sound at some distance from "location" the pallotrope is the apparatus used Here it may be mentioned that "pallo" is of Greek origin and means moving or dancing. It is in truth a dancing light that makes the record and reconverts it into sound.

The photophone, which is attached to the projector and which is the sound translator, is small enough to be carried in an ordinary valise. Here a slot similar in size and shape to that of the recording machine is to be found. The film passes across the slot. Light from a lamp passes through the film and falls on the photo-electric cell, after which the loud-speaker does the rest.

Vacuum tube amplifiers, with which millions of radio listeners are now familiar, are used both in recording and reproducing sound. Feeble telephone currents are thus magnified tremendously. Amplification is particularly important in reproduction. The loud-speaker must fill the auditorium or theatre with music of full, natural volume, and only by amplification and a correctly designed loud-speaker can that be attained.

The sound record, as we have seen, appears at one side of the film, and this film is moved intermittently across the projecting lens. Sixteen pictures are jerked in a second past this lens. But music on the film must flow continuously: there must be no jerks. To overcome this difficulty sound is produced from a part of the film which is in continuous movement. Hence the sound record does not appear actually adjacent to the appropriate pictures, but a foot or two away from them.

The secret of Dr. Hoxie's success lies largely in the extraordinary lightness of his mirrors and the parts that rock them and make them reflect beams of light on a film or on a photo-electric cell. So sensitive are the sound collectors and mirrors of the Hoxie machine that whispers can be picked up from a distance of 75 feet and translated into sound bands on the films.

Clearly the direction of a talking motion picture requires a new and very exacting technique. The actors must be perfect before the director shouts "Camera"—perfect in action, perfect in elocution. As the film is unreeled during the making of the picture the director must exercise all the fortitude and self-restraint of which he is possessed. There may be no bellowed instructions. Even the rustling of a piece of paper or the soughing of the wind in the trees is recorded. Yet despite the delicacy of response, the mirror of the Hoxie sound collector is not shaken out of place or deranged by the blaring of a brass band.

It must not be supposed that the apparatus for photographing sounds according to Hoxie's principles froms part and parcel of the camera on "location." The machine for taking the picture and the machine for recording collected music or speech are separate. Both are driven by electric motors, but the motors are acurately synchronized. Two separate negatives are obtained, the one a tenth of an inch wide, constituting the sound record, the other seven-eighths of an inch wide, constituting the action of the scene. The two are printed side by side on a single strip of film. Since sound and action are on one film there can be no mistake either in synchronization or tempo. A reel is projected at the regular speed, the time of the music necessarily be correct.

"... A Camera ... Truly Professional in Results"

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First National

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Many famous men use the DeVry on Hollywood movie lots to take difficult shots in feature productions. Cecil B. DeMille writes: "The DeVry has always given satisfaction in our studio." And George Archainbaud of First National: "While I was directing the First National Production of 'Men of Steel,' I found it impossible in many shots to use the standard camera. In each case we took the shots with a DeVry Camera and I want to tell you that you are to be congratulated on the manner in which you have made a camera which is truly professional in results, but so simple in construction that an amateur cannot fail to produce excellent moving pictures."

Cecil B. DeMille
Director

Write today for further information about this remarkable Motion Picture Camera that is priced at only $150. DeVry Corporation, Dept. 8-GA, 111 Center Street, Chicago, Illinois.

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Announcing New 125 Ampere Kligel Spotlight

The new Kliegl 125-ampere, long range, Spotlight floodlight, and effect projector, completely equipped for white and color lighting, framing, fading, standard effects and spotlight attachments—providing in a single unit everything that may be needed in the operation of the projector, and having all controls centralized, to facilitate speedy, convenient, and easy operation.

A new spotlight, floodlight and effect projector of greatly improved design—with more convenient controls, greater flexibility of operation, and higher lighting efficiency—embodying an entirely new departure in spot-flood control—wherein the arc lamp remains stationary and the lens is made to travel for focusing the light beam —has recently been announced by Kliegl Bros.

It is a 125-ampere, long-distance projector, complete in every respect, providing in a single unit everything required of a projector—spot, flood and color-lighting, framing shutters, effects, etc.

The design is compact, can be accommodated in a comparatively small space, and the hood is lower at the front than at the rear so that the operator's line of vision is unobstructed.

Higher Lighting Efficiency

It projects the light any distance up to 150 feet—and gives anything required from a 4-foot, perfectly round spot to a 50-foot spread—with uniform intensity; providing an intense white light having all the qualities of strong sunlight, bringing out brilliant colors in their true value. Finer adjustments of the arc afford a greater amount of light projection for a given current consumption, and a shield in front of the arc prevents light from the flame entering the optical system—eliminating ghosts and false light.

Centralized Control

All controls, including arc, focusing, shutters, color screens and directional controls, are centralized at the rear of the spotlight, in full view of the operator, and within arm's length of the operating position—affording the greatest convenience, speed and ease of operation.

Arc Lamp Stationary

The arc lamp remains in a fixed position—all focusing is done by moving the lens, causing no disturbance in the adjustment of the arc. Arc control handles are fixed in position and do not protrude more than a few inches beyond the lamp housing.

Arc carbons may be adjusted in every conceivable way —angularly, vertically and horizontally, and the lower carbon holder may be moved independently of the upper carbon, in any lateral direction. Six different controls are provided so that the arc can be quickly and easily centered, irrespective of any condition that may arise, and the arc length and crater adjusted to obtain the maximum effective light. Fibre grips insulate the arc control handles from the heat of the arc and protect the operator against burnt fingers.

Focusing Control

Condenser lens travels on a movable carriage and focuses the light without disturbing the arc lamp. The lens is made to move by simply turning a handle on the side of the spotlight. It travels quickly, smoothly and freely—stays put in any set position without being clamped, and is always ready for instantaneous change of focus.

One lens takes care of the full range from a 4-foot spot to a 50-foot flood. The simple movement of the lens, backward or forward, along the optical axis by means of the control handle, is all that is required. A pointer on the focusing control handle travels over a numbered dial on either side of the spotlight and in plain view of the operator. It indicates the position of the lens and permits setting the lens quickly to any desired focus.

The lens carriage slides on two parallel rods, and is attached to a chain, which passes over two sprocket wheels—one at the front and the other at the rear. The shaft of the rear spocket extends outside the housing and to it is attached the control handle.

To the underside of the chain a counterweight is attached which also slides on two parallel rods, but always moves in a direction opposite to that of the lens and thereby maintains the center of gravity and keeps the spotlight in perfect balance at all times.

The frame in which the lens is mounted, is hinged so that the lens can easily be removed for cleaning or replacement, and is also so designed as to allow unrestricted expansion.

Color Lighting

A color box or boomerang on the front of the spotlight provides means for changing the color of the light beam. It contains four color frames for gelatin mediums, controlled by levers at the rear of the spotlight—and ready for operation at all times. There is a separate lever for each color frame and each lever is keyed to correspond with the color it controls The position of the handle indicates the position of the color screen and a quarter turn throws the screen in or out of position. The color screen is free of all mechanical connections and may be readily removed by simply raising the cover of the color box and lifting the screen out of its slide grooves; or, if it is to be inserted, simply dropping it into its proper place. Gradual or quick changes of color can be produced and one color blended with another as may be desired.

Framing and Fading

A curtain shutter and iris shutter set in the lamp housing, and independently controlled from the rear, permit light to be framed to flood the stage or orchestra pit, and to fade the light on or off at will. They are quick acting in operation and a quarter turn of the handle is sufficient to operate the shutters from full-opening to

True Ball Tripod Head

Edward Snyder, A. S. C., demonstrating Fred Hoefner's True Ball Tripod Head to his director Spencer Bennett. The head is shown mounted with a Bell & Howell Camera.

black-out, or vice versa. Guide marks on the back of the housing indicate the position of the shutters and facilitate speedy operation.

All Parts Accessible

All parts and adjustments are easy of access—large, self-closing doors, on either side of the lamp housing, permit access to the arc lamp for changing carbons and making adjustments. Hinged cover over lens compartment gives free and easy access to lens for cleaning or replacing. Hinged cover over color box permits access to color frames, and all external adjustments, clamp screws, etc., are within easy reach.

Well Ventilated and Light Tight

Double wall construction, baffles, ducts and numerous vents insure a free circulation of air, ample ventilation and comparatively cool operation. Exceptionally large peep-holes in the door, fitted with ruby glass, and provided with a self-closing shutter, permit inspection of the arc in operation, and every precaution has been taken to eliminate light leakage that may be disconcerting to the operator.

Perfectly Balanced

Spotlight is perfectly balanced in every way—it moves freely and easily in any direction and remains set in any position. It "follows" with remarkable ease. A well-designed base and heavy pedestal upright provide a rigid and substantial support for the spotlight—prevent vibration and insure steadiness in the operation. The weight of the spotlight rests on ball bearings and in effect all friction between heavy moving parts is eliminated. Practically no effort is required on the part of the operator directing the light beam.

Spotlight can be set to any desired angle within practical requirements—quickly and easily fixed in position by the turn of a hand screw. It swings through a vertical angle of 67°—45° below the horizontal and 22° above, and turns completely around in the horizontal plane about its central axis. The base is telescopic and permits adjustments in height.

Extra Colors and Effects

The customary slide grooves are provided on the front of the color box and permit the use of all standard effects, color wheels, extra color frames, and special spotlight apparatus.

The new Spotlights are on display in the showroom of the manufacturers, Kliegl Bros., 321 West 50th Street, New York City.

A South Sea Masterpiece

When "White Shadows of the South Seas" is shown upon the screen as a Metro-Goldwyn-Mayer special the observer will note the names of three cinematographers to whom credit is given for the photographic beauty of the film.

This unusual credit procedure was decided upon because the great camera artistry that went into the filming of this remarkable production demanded that full recognition to be given the men responsible for the effort.

Clyde De Vinna, George Nogle and Bob Roberts, all members of the A. S. C., are the trio whom M-G-M has credited with the exceptional photography to be witnessed in this feature.

Under the direction of W. S. Van Dyke the cameramen and their assistants spent three months in the South Sea islands, battling fevers, climate, jungles and all manner of attending technical difficulties.

And when they emerged they had perhaps the most perfect camera record of any film expedition that ever set forth upon a distant location, far from a "home base" laboratory and where their only resources were their very own.

The camera crew had to carry a complete stock of spare parts for their equipment and to make whatever repairs were necessary when and where they chanced to be needed. They carried with them a generator truck that broke down all the bridges in the swamp lands and had to be motored through the waters of uneven lagoons at the peril of being overturned or being wrecked entirely by the salt water inundation.

The film frequently melted and ruined an entire day's shooting before the cameramen got back to the makeshift "lab" set up under thatched roofs. Ice was almost as scarce as fresh film, but whatever could be obtained was used to pack the film to prevent additional loses.

Over the tortuous mountain trails that cut through the jungle undergrowth the cameramen had to pack in their equipment to shoot the inland scenes that form so great a part of the production. And before they could make a single shot several acres of jungle brush had to be cut away overhead so that sufficient light could get through the heavy foliage.

The most remarkable part of the expedition is that despite the handicaps and almost unsurmountable difficulties that beset their every turn the cameramen succeeded in obtaining something more than just good film. Without a doubt—and critics thus far have agreed—"White Shadows of the South Seas" is one of the most photographically perfect productions ever to be presented on the silver sheet.

New Filmo Motion Picture Cabinets

There has been a very definite need for a long time for a cabinet that would hold a FILMO Camera, Projector, Film Editor and all the other accessories provided for the serious amateur movie enthusiast. To completely fill this need, Bell & Howell have just announced the new FILMO Console Cabinets.

These cabinets come in two styles. First, the Desk Model "G," complete FILMO Cabinet that has the capacity of FILMO Projector, both the FILMO 70 and 75 Cameras and all accessories in general use. The other console, the Model "E" is a slightly smaller cabinet that is especially adaptable to the smaller home or where space is limited.

Both of these cabinets are well designed, sturdily constructed, finely finished and being made of solid walnut veneer, are beautiful pieces of furniture, comparable to the finer radio and phonograph consoles. These cabinets take their fitting place among the finer furnishings of the well planned and beautifully arranged home. The Desk Model "G" is priced at $135 00, the Model "E" at $105.00.

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Technique of the Talkies

The Success of Sound Pictures Depends Upon the Proper Assemblage of Their Seven Technical Forces

By Lewis W. Physioc.

They say that the talking pictures, of today, have no school of technique. This is not surprising, nor is it alarming. The technique of the silent pictures represents a development of less than thirty years, and although that may seem a considerable time, it is very little, compared to many of the other arts that represent the development of centuries. Another consideration is found in the fact that motion pictures, unlike many of the other arts, is a combination of many branches; each is burdened with the responsibility of its own technical problems, and the completed picture demonstrates, not only the individual excellence of each department, but a successful co-ordination of all the departments.

The introduction of the talking pictures brings with them the additional art of the spoken drama which in itself, embodies an entirely different technique from the silent pictures. It may not appear so, on first consideration, but there is a great difference between playing a scene in pantomime and enacting the same with related spoken lines, for the latter involves the reading of the lines in character and expression as well as the physical portrayal. Even trained actors, of the stage, must recognize the difference in performing before a large audience and playing to the microphone It is not surprising, then, that we anticipate a modification of picture technique for the talkies.

The development of technique, in any form of art, is the result of persistent and fearless criticism of our work; we learn by an unreserved acknowledgment of our errors, and the acceptance of the criticism of others—absolute sincerity on the part of the student and the unquestioned authority of the critic.

The talking pictures occupy a peculiar position in the picture business. They have re-entered the field after an interval of many years, and have not, like the silent pictures, enjoyed the same process of development during that period. And further the supplementing of modern scientific equipment probably encourages the idea that there can be very little benefit derived from a study of those earlier experiments. It is unfortunate that the merit of the present achievements cannot be signalized by a comparison with the previous efforts. There is still a mystery suggested in the absolute suppression of the first "talkies," especially the Edison Kinetophone.

We, therefore, depend upon contemporaneous criticism to develop the technique of the talkies. This criticism points out several things worthy of consideration.

1st. We mention the extreme closeup. This feature has been abused and overworked even in the silent pictures and, in the talkies, it becomes an even more important matter, due to the relation between the volume of sound and the size of the picture.

2nd. The amplification of sound is being unduly exaggerated. We see this in all applications of the radio—in the home, etc. They sometimes fairly drive us out of the house, in some instances, even, out of the neighborhood. There is a law that governs this, which should be observed, and may be likened to an enlargement made from the motion picture film; there is a point where smoothness and quality leaves off and coarseness begins. The amplification craze reminds us of a child with a beautiful toy balloon; he keeps on blowing it up to see how far it will extend. It finally loses its symetrical shape, bulges out here and there, purity of color is destroyed by attenuation and it finally bursts. We may further on point out that proper control of amplification bears an important part in talky technique.

3rd. A review of the present talkies suggests an exaggeration of lip gymnastics. This is unnecessary, because of the intimate detail characteristic of motion picture photography, as compared to the legitimate stage declamation It tends to confuse the most perfect synchronism, by the action of the lips anticipating the emission of the sound. This fact has probably led some critics to assume that the experts have not yet adopted the correct starting point, and which impairs the illusion.

4th. There is a suggestion of the limitations in the recording area, in lengthy dialogues, by players confined to fixed positions. This limits the possibilities of effects, and will soon become monotonous. We cannot be persuaded that the modern developments will not permit of a more flexible application.

5th. It is needless to mention the reading of lines, for we all know the importance of this element. It is an art acquired only after much study. So rare an ability is this that we cite the fact that there are few people who can read the simplest thing gracefully, correctly and in character.

It involves many features, chief among them, one of nature's parodoxes: a fine voice is a rare gift, but we sometimes find it where we least expect it; it is often missing where we expect to find it or where we would wish it. It frequently repudiates what we call "screen personality." It always enhances any personality. There may be also an habitual tendency among legitimate actors to try to reach the audience, rather than merely playing to the microphone. A fine voice, combined with artistic declamation, dramatic ability and physical charms is what produce our few idols of the stage.

6th. The above section introduces a serious item: that of good tone reproduction. This involves microphonic construction and proper recording, the proper loud speaker and judicious amplification. It is by no means a simple combination, and, in the application of talking pictures, must be studied as a combination rather than the individual application of each department. This consideration is suggested by a tendency towards a similarity of all masculine voices. Let us not forget that it is **his** or **her** voice that we like to hear.

7th. Directing and editing will also be modified; which may obviate any starthng jump from the spoken dialogue to the printed title, or close-up of lips moving in silence. Cutting will be simplified because of the added possibility of story by means of the dialogue.

The co-ordination of these different departments represents the general technique of talking pictures, and they must be studied and developed, not only individually but collectively. It is the proper assembly of these forces upon which depends the success of talking pictures. This process is far more important in the talkies than the silent pictures and may be likened to the assembly of a great machine; we may assemble the various parts any old way, but unless each part has been carefully fitted and co-ordinated it will not work. This perfect harmony of elements establishes the one vital feature, without which they are worthless, and that feature we call **illusion.**

This is one thing, at least, that the early efforts may contribute to our study of the subject; for no matter whether the system is founded on the phonographic (as was all the early methods) or the sound photography system, the matter of **illusion** is paramount.

Seven years' experience taught the early students that perfect illusion depends upon a proper relation between the picture area and volume of sound, and much study was given to working out these proportions. The eye and ear of man form an unique combination which gath-

ers from experience, beginning from the rational period of babyhood, in building up in the brain a system of comparative values, in estimating the results of the combination of sight and sound. We hear a sound, and this reference system in the brain immediately sets a value upon it: We recognize its source, its character and estimate its distance. We see an object, and our experience reference estimates its nearness or remoteness. In both cases it is merely an estimate and considered individually, this estimate is satisfactory, but the moment we try to associate unrelated values of sight and sound it immediately violates this reference system and the results are unconvincing. To illustrate this further we cite the long practice by ventriloquists, in trying to furnish a voice that will fit their manikins. The success of their efforts lies in trying to furnish the combination that agrees with the experience of the auditors, and this experience refuses the possibility of a deep, gruff voice issuing from the diminutive figure of the manikin. We may also cite the shock to this experience of ours when we hear, for the first time, a man of great stature speak in a delicate, high-pitched voice, or a Lilliputian address us in the deep basso of a giant.

To illustrate the idea of illusion by an extreme example, and one that peculiarly fits the subject, we may recall having attended some vast gathering, listening to a speaker, who stands at such a great distance as to be unable to recognize him, and over our heads is a loud speaker flooding us with a tremendous volume of sound. Do what we may, we cannot associate the sound with the far-distant speaker. But cut off the microphone, and we immediately become conscious of the real effect, although we see or hear very little of the speaker. We stood close beside a director, who was directing a great scene through the microphone and it was impossible to associate the sound, coming from the various loud speakers, with the man at our side.

This introduces a serious point of criticism,—this matter of illusion. We hear on all sides discussions which indicate that the auditors are satisfied that synchronism is accomplished; but that there is a feeling that only at rare times does the sound seem to come from the proper source. They view a medium close-up that appears to fit the sound, there is a gasp of delight audible over the entire audience, the illusion is perfect; then comes a large head, covering the entire screen, the lips move in perfect synchronism with the sound, but there is a sense of disappointment in the audience; then a cut to a long shot, and we begin to get the effect of that speaker in the stadium. We hear the remark, "why can't it all be like that one scene?" It is because that one scene embodies a perfect relation between the picture area and th sound volume,—a perfect co-ordination between the elements of sound and sight that agrees with that reference system furnished by our experience.

This situation is not alarming, for we see sufficient to satisfy ourselves that the scientist has done his part; he has furnished the artist with the means, and it merely remains for the artist to employ these agencies in ultimately developing a refined and perfect product. To accomplish this, both the scientist and the artist are dependent upon sincere and honest criticism rather than prejudice and antagonism.

The only danger we see to the success of the talking pictures lies in the multiplicity of systems now engaging the attention of producers. Standardization is largely responsible for the success of pictures in general. Standardization in the talkies is what now concerns, not only the producer, but more particularly the exhibitor, who has to pay for the expensive equipment. It will resolve itself into the survival of the fittest as regards the various systems. Whether it shall be the phonographic system, the variable area (photographic), the variable density (photographic), or the stylus engraving on the celluloid of the film (phonographic).

But no matter what developments may furnish in the matter of standardization, there will never be any question as to the importance of the technique of the talkies.

Tribute to An A. S. C.

Were he to have achieved no more in the transitory period that constitutes man's life upon this planet than to invent the photographic lens that bears his name, Karl Struss would have been entitled to the plaudits of the multitude. In the design of this lens Struss made, perhaps, the greatest single contribution to the advancement of pictorial photography since Stieglitz initiated his noted revolt against the smug, self-sufficiency of his fellow-craftsmen twenty years and more ago.

The Struss lens brought shockingly different concepts of the photographic art, and its maker promptly was characterized as an anarch and viewed distrustfully by the conservatives. But his device, intelligently utilized, revealed the lyricism latent in even the most prosaic objects. Struss photographs thus became the vogue of captious New York.

When moving pictures began to draft competent artists for service behind the camera as well as in front, Struss became a cameraman. I'm told that he's one of the highest paid and most sought-after in the business. I believe it. His moving-picture photography evidences the same intimate knowledge of pleasing composition and the value of light and shade that won for his photography such widespread acclaim.

But though his vocation is with the films, his avocation continues to center about pictorial work. Seldom does he resort to the conventional, in subjects, and if he does, he deviates so far from the conventional practices of photography that the ultimate result becomes very different. His knowledge of the potency of light is little short of phenomenal. By the use of appropriate filters he photographs with the red, the yellow or the blue rays of the sun's light, in accordance with the demands of the subject.

When Touring Topics inaugurated its pictorial section, Struss was one of the first among pictorial photographers to contribute. Few issues have appeared in which he has not been represented. He ventures afield on every occasion, and when he returns he brings to us a group of engaging prints, a friendly gesture of co-operation to the Automobile Club of Southern California, which he so much admires.—Touring Topics.

George Meehan, A. S. C., is doing a series of children's pictures for Smitty Productions at Tec-Art. George Marshall is the producer.

Charles Schoenbaum, A. S. C., holds the A. S. C. record for continuous employment with one production organization in motion pictures. He started with Lasky in 1916, his first picture being "The Girl Who Came Back," starring Ethel Clayton, directed by Bob Vignola. His last was "The Water Hole" by Zane Gray. On his last two pictures Mr. Schoenbaum used Mazda lights exclusively for interiors. He did his first work in pictures with D. W. Griffith in the lab. September 5, 1914. Mr. Schoenbaum has made an intensive study of sound pictures and is now at liberty to undertake contracts for this kind of production.

Elmer Fryer, A. S. C., is the luckiest still photographer in Hollywood! Having recently affiliated himself with Warner Brothers Studio, Fryer shot the stills and special art studies for Warner's million-dollar production, "Noah's Ark," starring Dolores Costello with George O'Brien in the leading male role. His second assignment was Al Jolson's Vitaphone special, "The Singing Fool." For twelve weeks Elmer Fryer listened to the peerless voice of Jolson and was paid for it! It is hard to imagine anything more pleasant than receiving one's weekly wages and at the same time having the opportunity to hear Al Jolson's repertoire as only he can sing it. Fryer will have to get along without listening to Al Jolson's "Mammy" singing for a while as he has started work as still man for "The Redeeming Sin," Howard Bretherton's next directorial assignment for Warner Brothers, starring Dolores Costello.

Advance of the Mazda

Assimilation of Incandescent Lighting Equipment by Motion Picture Studios

More than a year has elapsed since the introduction of incandescent lighting equipment units, designed especially for use in motion picture photography. Since that time there has been considerable discussion, many tests and large quantities of film made with this form of light.

All, who have followed the development of this method of lighting, feel that the incandescents have established a place for themselves. The profession in general will probably be interested in seeing to what extent the new apparatus is being acquired by the studios.

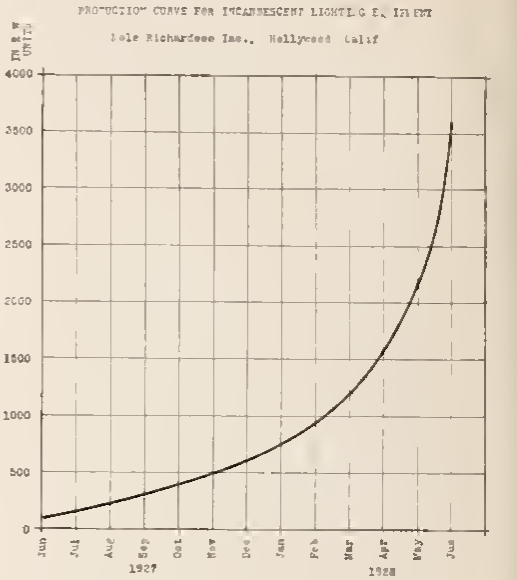
PETER MOLE

The past year has been what we might call a more or less dull period in picture making at some studios. Others have not had the time to make shifts in lighting methods, due to interruption of schedules, however, you will note that a steady and healthy accumulation of Mazda equipment is taking place.

We have gathered our information from reliable sources and feel that the data and figures given herein should be a fairly accurate summary of the situation at this time.

A Mole-Richardson production curve covering equipment sold and delivered monthly during the year ending June 31st, 1928, shows a gradually increasing demand for incandescent lighting.

We have used the KW lamp capacities of the various units as a basis for tabulating our information. In addition to their own equipment, the studios have kept a rental stock; available at this time and amounting to approximately 1000 KW in lamp capacities in almost constant use.



The following is an incomplete list of pictures made or being made with at least 90 per cent incandescent lighting.

Producer	Star	Director	Cameraman	Title
		FIRST NATIONAL		
Ned Marin	Billie Dove	Alex. Korda	Karl Struss	Night Watch
John McCormick	Colleen Moore	Mervyn Le Roy	Sid Hickox	Oh, Kay!
Ned Marin	Mulhall-Mackaill	William Seiter	Lee Garmes	Waterfront
		METRO-GOLDWYN-MAYER		
	Dane-Arthur	Harry Franklyn	John Arnold	Detectives
Harry Rapf	Greta Garbo	Fred Niblo	Bill Daniels	War in the Dark
	John Gilbert	Victor Seastrom	Oliver Marsh	The Devil's Mask
		METROPOLITAN		
Howard Hughes	All-Star	James Cruze	Gaudio-Perry	Hell's Angels
Howard Hughes	Thomas Meighan	Reed-Hughes	Joe Morgan	The Mating Call
Howard Hughes	Thomas Meighan	L. Milestone	Tony Gaudio	The Racket
		PARAMOUNT		
B. P. Fineman	Fay Wray-Cooper	Roland Lee	Al Gilkes	First Kiss
B. P. Fineman	Bebe Daniels	Marshall Neilan	Roy Hunt	Take Me Home
	Baclanova-Brooks	Schertzinger	Roy Hunt	Forgotten Faces
J. G. Bachman	Emil Jannings	Frank Tuttle	Vic. Milner	Sins of Our Fathers
	Bebe Daniels	Clarence Badger	Roy Hunt	Fifty-Fifty Girl
		UNITED ARTISTS		
Samuel Goldwyn	Banky-Colman	Fred Niblo	Geo. Barnes	Two Lovers
Samuel Goldwyn	Gilda Gray	Fred Niblo	Geo. Barnes	Devil Dancer
Samuel Goldwyn	Ronald Colman	Herbert Brennon	James Howe	The Rescue
Samuel Goldwyn	Vilma Banky	Victor Fleming	Geo. Barnes	The Awakening
Joseph Schenck	Norma Talmadge	Henry King	Oliver Marsh	Woman Disputed
		UNIVERSAL		
	Hersholt-Joyce	Melville Brown	John Stumar	13 Washington Square
		William Wyler	Charles Stumar	Shake Down
	All-Star	Ernst Laemmle	George Robertson	Phyllis of the Follies
	All-Star	Harry Pollard	Gilbert Warrington	Show Boat
	J. Schildkraut	Paul Leni	Harry Mohr	Last Warning

"TALKIES" NEED "INKIES"

INCANDESCENT LIGHTING EQUIPMENT FURNISHES
THE ONLY ABSOLUTELY SILENT LIGHT SOURCE
ESSENTIAL TO THE NEW ART.

MOLE-RICHARDSON INC.
STUDIO ELECTRICAL EQUIPMENT
6310 SANTA MONICA BLVD. HOLLYWOOD

ALL PRODUCERS OF "TALKIES" USE "INKIES"

The Vitaphone films of Warner Bros. and the Movietone Features of the Fox studios are made with incandescent equipment.

In addition to the pictures listed, incandescent lighting has been used for 90% of the close-up and foreground work in virtually every recent production. Its natural effectiveness in color value reproduction, its pronounced economy and other good qualities recommends its use wherever possible.

The advent of voice and sound reproduction in motion pictures makes it absolutely essential that every foreign noise be eliminated during the shooting of a set. Arc equipment, due to its noise, except when used at considerable distance from the microphone, had to be abandoned. Incandescent lighting has quietly appropriated this field of service and can be found in the "talkie" studios effectively meeting their requirements for a noiseless and all sufficient light medium.

There has been a constant and ever increasing demand for incandescent equipment and many requests for information covering the line manufactured by Mole-Richardson, Inc. The requests have come not only from the United States and Canada, but from many points in Europe, Asia and Australia.

We have shipped some equipment to Europe and have felt it expedient to establish a representative in London.

It hardly seems necessary to go further into the subject. We in Hollywood, engaged in motion picture work, know that incandescent lighting is an accepted fact as far as the studios are concerned.

Those engaged in similar work have but to give this new method an honest test and we feel sure that they will find it exceedingly interesting, more profitable and a most decided advance over old methods.

Saved from the Arctic

By Charles G. Clarke

(*Continued from Page 10*)

which proved to be the corner posts of four oil claims. On three of them hung cans with the claim papers inside. They were filed in 1921 and the only thing we could gain from them was that the district in which the claims were located was known as "Tangent Bay" or "Tangent Point." But we were together again. You can bet that thereafter I saw that Captain was on his feet before I got away very far. Plodded along the rest of day and night on the North course."

On Friday, June 1, Clarke and Robertson heard the whirr of a plane and succeeded in attracting the attention of the pilot, Matt Nieninen, of Anchorage. He made an excellent landing on a sand bar and the two lost men were overjoyed to learn that he had come to find them and that he had room for both in his cabin. By 5 P. M. they were in the hospital at Point Barrow, where they received every possible attention.

Clarke arrived in Hollywood July 1, almost completely recovered and within three days was back on the Fox lot, where he is chief cinematographer for John Ford.

While Clarke and Robertson were lost the A. S. C., through President John W. Boyle, started the machinery of the U. S. Government to search for them, but they were brought in before any definite arrangements could be made.

Mr. Clarke says he and Robertson would have made Point Barrow all right, but their rescue by Nieninen saved them two to three days of terrible agony, weariness and pain.

Through the entire terrible experience Clarke conducted himself like the true man he is and in accordance with the best traditions of the A. S. C. The Society is proud of Clarke and hails him as an ornament to the profession.

Panchromatic light from your present arc lamps

NO NEW equipment will be needed when you decide to use panchromatic film in your cameras. Just insert National Panchromatic Carbons in your present arc lamps and shoot. These carbons provide light that is accurately matched to the film, and the result is the correct tone for every color in the scene.

In addition, National Panchromatic Carbons are unusually economical. They provide more photographic light per watt of power than any other light source, except only National White Flame Photographic Carbons, and more visible light per watt of power than any other light source.

Your present arc lamps, plus a supply of White Flame and Panchromatic Carbons, offer you the widest possible range of studio lighting.

NATIONAL CARBON CO., INC.
Carbon Sales Division
Cleveland, Ohio

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Jersey City, N. J. Pittsburgh, Pa. Chicago, Ill.
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National
Photographic Carbons
White Flame and Panchromatic

Mr. Harry Perry, A. S. C., flew from Los Angeles to San Francisco and return the other day, leaving Los Angeles at 10:30 in the morning, arriving at Oakland 1:30 P. M.; he left Oakland at 1:35 P. M., arriving back in Los Angeles at 5:30 P. M.

He went up in a Western Air Express, 3-motor Fokker plane, and returned in a Pacific Air Transport Co. Boeing plane; 6½ hours was the total flying time.

Rolla Flora, A. S. C., has joined the Wm. Fox forces.

Gilbert Warrenton, A. S. C., has gone back to Universal to make "The Show Boat." The story is from Edna Ferber's "Mother Knows Best." Harry Pollard will direct.

Frank C. Zucker, A. S. C., New York City, is now connected with the R. C. A. PHOTOPHONE, Inc., of New York.

Chas. J. Davis, A. S. C., of Brooklyn, N. Y., is now in London, England, for an indefinite period, working with the Fox Film Corporation.

Paul Perry, A. S. C., is with Director George Melford at F. B. O.

Alfred Gilks, member of the Board of Governors of the A. S. C., but recently finished for Paramount-Famous Lasky a picture entitled "The First Kiss," from the Saturday Evening Post story, "Four Brothers," and directed by Roland Lee. The picture was shot with Mazda lighting away down on the eastern shore of Chesapeake Bay. Mr. Gilks is now back at Long Island City, where he is making tests for sound pictures on the new stages recently finished for the purpose by Paramount.

Samuel Goldwyn views with particular pride the fact that while producing two or at the most three pictures a year—of the ten directors named as the "Best of 1927," his organization has three, i. e., Fred Niblo, director of "Two Lovers;" Herbert Brenon, director of Ronald Colman's "The Rescue," and Victor Fleming, graduate of the A. S. C., director of Vilma Banky's "The Awakening."

Marking the entrance of filmdom's greatest musical "ace" with active service for pictures using VITAPHONE and MOVIETONE effects, Dr. Hugo Riesenfeld leaves Los Angeles within the next few days for New York to conduct an orchestra of one hundred and fifty in the making of complete music scores for Samuel Goldwyn's production, "TWO LOVERS," and for John Barrymore's "THE TEMPEST." It is announced that these will be the first, last and only sound device musical scores for United Artists pictures to be made in New York. Dr. Riesenfeld goes there at this time pending the erection of special sound device stages at the United Artists studio.

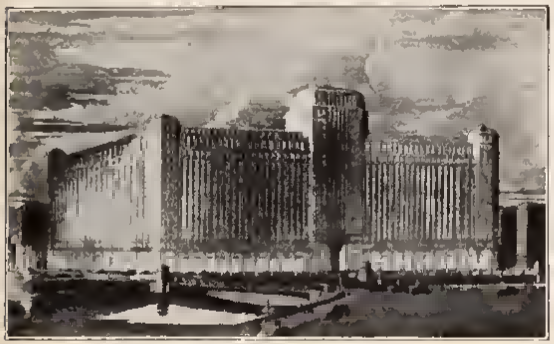
Peverel Marley, A. S. C., photographer of many of the most noted Cecil B. DeMille productions, insists that the greatest "lens hound" he has ever encountered is Bozo, a dancing duck which figures in "Show Folks," a Pathe production on which he is now in charge of camera work and which Ralph Block is producing and Paul L. Stein directing. A lens hound is studio parlance for a player addicted to doing any and everything which will bring him in the best range of the camera, preferably when a close-up is in progress.

E. Burton Steene, A. S. C., is reported to have done some wonderful Akeley work on "Hell's Angels," sometime to be released by Caddo.

Cost $30,000,000

Chicago is to have a gigantic Merchandise Mart housed in its own building, which will be twice the size of the largest business building in the world. This mammoth structure, two city blocks in length, 18 to 23 stories high, is planned for the service and convenience of merchandize buyers of the United States and to achieve for Chicago a still greater prestige as a Great Central Market, it was declared today. It will cost $30,000,000. Construction will begin immediately.

The building will extend 724 feet on Kinzie street, 577 feet on the river front and 324 feet on Wells street, with a diagonal frontage facing Orleans and Franklin streets.



It will be set back from the river about 80 feet to accommodate a broad upper level drive extending from Wells to Franklin.

On all floors of the Mart will be great corridors, with all the appearance of boulevards, more than 650 feet in length, on either side of which will be the shops displaying their varied lines—veritable "business streets." These great corridors will be impressively treated architecturally and with the large space available it will be possible to house the selling activities and warehousing of many allied concerns on one floor, thus attaining the advantages of concentrated groupings.

Connection will be made with the Illinois Tunnel Company's system of freight transportation, which has more than sixty miles of tracks beneath the streets and buildings of the city, reaching all other railroad terminals. A river dock for vessels will connect with the south freight elevators of the building.

One of the interesting features planned for the Mart will be a Merchants' Club in the tower of the building, with lounging rooms, reading and smoking rooms, where the retailer may relax and meet his friends. The Mart will provide the retailer with everything but a place to sleep. He can go direct from the train to the Mart with his baggage. Here his hotel reservations will be taken care of, his baggage transported to his hotel and placed in his room. Restaurants, lunch rooms and grills in the Mart will further economize his time.

Rochester, N. Y.—Because a little amateur movie reel showing Rochester's trolley busses in operation was made on short notice and traveled across the country in record time, Salt Lake City, Utah, is going to begin a similar transportation service about August 15, according to information received here recently. The Salt Lake City Commission was hesitant to permit "trackless trolleys" without an opportunity to see them in operation in some other city. With five days left before the franchise hearing, the Utah Light and Traction Company telegraphed to Rochester, where a film was made of the trolley bus operation here. The picture reached Salt Lake City by air mail in time for the hearing and the franchise was granted.

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WE HOPE THEY ARE TUNED IN SO WE WILL TELL THEM SOME BED TIME STORIES. BY THE WAY IT WOULD BE WELL FOR THE MANY FRIENDS TO SAVE UP SOME FLOWER MONEY
WONDER HOW THE GANG AT THE A.S.C. ARE
GEE WHIZ CHARLIE THE BOTTOM OF THE— THERMOMETER IS OFF
IF I HAD THIS ICE IN HOLLYWOOD I'D SURE MAKE A FORTUNE—
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GLENN R. KERSHNER A.S.C.

Charlie Clarke and His Friends Can Laugh About It Now

Film Capital's Industry

Output Runs $25,000,000 Exclusive of Films

An industrial survey being made by the Hollywood Chamber of Commerce and the Hollywood branch of the Los Angeles Realty Board reveals that there are more than 300 wholesale and industrial firms operating in the Hollywood area.

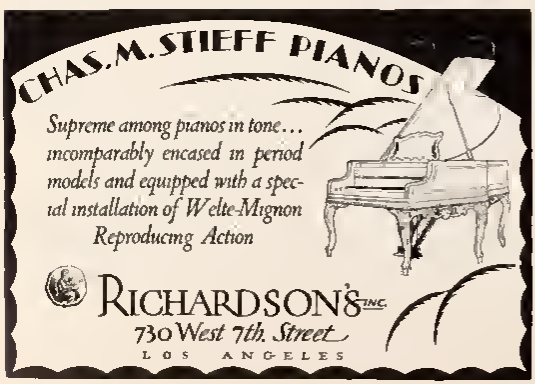
The Manufacturers' Directory of the Los Angeles Chamber of Commerce for 1927 lists 182 industrial firms in the Hollywood district. In the additional list of 125 names, there are numerous branch stores and a number of new industries located here since the compilation of the directory. These are being checked in order that the total output, pay roll and number of employees may be obtained

An estimate of $25,000,000 yearly output (excluding the motion picture industry) seems conservative in view of the fact that the Hollywood realtors on a recent visit to this industrial district found the combined output of three firms—the Hollywood Paper Box Corporation, the Hollywood Casket Company and the Good Humor Ice Cream plant—totaled $3,000,000 for the year 1927.

There are thirty-two firms handling products necessary for the making of motion pictures. It is said $115,000,000 will be spent on the making of pictures during 1928, and it is to be expected that a large part of this will be expended in Hollywood.

Building materials are handled by forty-two firms; twelve manufacture or handle wrought iron and metal; there are seven large wholesale plumbing houses; eight manufacturers of ice cream and five of candy; six firms manufacture furniture. The printing industry is represented by thirty-one concerns.

More than 100 plants manufacture pianos, radios, mattresses, caskets, lamps, pencils, art statuary, trunks, violins and other necessities and luxuries of modern life.

Chas. Boyle, A. S. C., has just finished the camera work on "The Candy Kid," directed by David Kirkland. It was crook stuff with lighting in keeping with the story. Rex Lease, Pauline Garon and an all-star cast were featured. Mr. Boyle recently made some important shots on "Hell's Angels."

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Victor Comes to Hollywood

A large plot of ground in Hollywood, Cal., situated a short distance from the studios of several important motion picture companies, has been purchased by the Victor Talking Machine Company as a site for a plant in which it will carry on its work of sound synchronization for films, it was announced today by E R Fenimore Johnson, executive vice-president of the company. Work will start immediately on a record-pressing plant and in the near future a studio will be erected in which actual scenes from photoplays may be "shot" at the same time voices of players or other sound accompaniments are being recorded.

The purchase of this ground is a step in the development of sound synchronization which Victor inaugurated a few months ago. It is not the intention of the Victor Company in any way to compete with the film producing companies. It will be strictly a service company, providing picture producers with sound accompaniments for their photoplays, either in the form of complete synchronized scores arranged and recorded by Victor's expert staff and made after the feature films have been cut and edited, or in sound effects recorded during the actual photographing of the films. It will also make records for any company which does its own recording. This latter work it has done for some time for the Vitaphone Company.

In addition to its plant in Hollywood it will maintain trucks equipped with recording apparatus which can be quickly moved to any studio or location where sound is to be recorded. Recent experiments with a portable apparatus to record the sounds of an airplane motor in flight have proven the practicability of the scheme.

Two feature films have already been given synchronized scores by Victor. They are "Wings" and "Warming Up," both Paramount productions.

Filmo Vignetting Mattes

Add Professional Atmosphere to Amateur Films.

We are all familiar with the "shots" shown in professional films where the subject is photographed through mattes (sometimes known as masks) cut in the shape of a heart, keyhole, binoculars, etc. You can get the same effect with the FILMO 70 Camera by using the newly developed FILMO Vignetting Mattes just announced by the Bell & Howell Company.

These mattes come in sets of twelve—six objective mattes and six corresponding units for the viewfinder. The objective mattes are designed to fit into the groove on the front of the FILMO Iris Vignetter, where the Vignetter Color Filter is ordinarily used. The matched viewfinder mattes slip over the viewfinder objective, making it possible to center the object properly and accurately on the film.

There is a set of FILMO Vignetting Mattes in the shape of a heart which is generally used on close-ups, especially for the finale of love scenes. Then there is a set for keyhole view which fits in wonderfully well with detective stories, mystery plays and the like. Sometimes mattes of this sort can be used effectively in comedies. The cloverleaf mattes are good ones to use in Irish plays or where one wishes to convey the feeling of verdant fields and lawns. It helps to put over these impressions to an audience easily. And then there are mattes in the shape of a triangle that can be used in triangle plays or for cutting out unwanted overhead back-ground in any scene. Sometimes there is a place for mattes of this sort in mystery plays.

The FILMO Vignetting Mattes has certainly enlarged the field of amateur work, placing still more professional effects at the beck and call of the amateur.

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Significance of Jewels

The Influence of Rock Crystals and Other Stones on Mankind Said to Be Anything But a Dream

By Mrs. Emma Cecilia Fleming

Emma Cecilia Fleming is a gem expert, with offices in the Broadway Central Building, Los Angeles, who has made a profound study of jewels and rock crystals not only from the material and commercial point of view, but from the hidden or occult angle, and whose findings will, I feel sure, prove of interest to all classes of intelligent readers. This story which, under ordinary circumstances, would be out of place in a technical periodical like THE AMERICAN CINEMATOGRAPHER, is of peculiar interest just now because of information that has reached the editor regarding researches with the camera now making in the realm of precious stones and which promise amazing results. It may be the camera after all that will reveal the unseen, paradoxical as this may seem.—Editor's Note.]

We stand at the beginning of a new age. Much knowledge of a material nature has been gathered in the age that is past. Much knowledge that has been occult, that is to say, bidden, will be brought to light for man's use in this age that is dawning. This knowledge will come to us in various ways—by research, by intuition, by the revival of the mysteries and it will be knowledge that can be used here and now, since the coming age will be the physical age in its best and truest sense. The knowledge gained will not be, as used to be said of our religious teachings, exclusively for use in the worlds to come, but for our use now. Everything that has grown, that has evolved is for use. For a time we stressed the transitory nature of things physical to a marked degree.

It is true that the Physical life is transitory but so is the astral that follows upon the physical. So, in point of fact, are all succeeding lives. So might we not make use of what knowledge we have to make our lives **now** more livable—that our wisdom may not be like the charm, the cantrap of the hero in one of our forbidden books; this charm that was given to him by a very wise man was only good to get out of hell with.

What is the power of precious stones?

From the earliest times jewels have held a fascination for mankind. Among the ancients (as we speak of the races that preceded ours) this was more than mere fascination. Many of the earlier races understood even better than we how to take full advantage of all the hidden, the occult forces in nature, and our remote ancestors understood the peculiar quality of jewels to act as a focusing point to attract to them whatever power they wished to use.

The age just drawing to a close is the age of Mercury—the age of the concrete mind—the age of the man who scorns intuition, sensitiveness, as mere imagination. Even in this age there has been a sort of desultory interest in jewels apart from their commercial value, but this interest was considered to be only seemly in romantic young ladies—or classed with the children's fairy tales. The Jewelers' Circular of May, 1927, in complaining of our American list of birth-stones, which does not coincide with the European or that of the Orient, naively remarks: "Of course, Mr. Steele F. Roberts, late president of the Jewelers' Association, when he compiled the list of birth-stones had in mind solely their salea value and gave no thought whatever to ancient or astrological lore." I shall agree with the writer at once—in fact, there is no argument.

When the average man or woman who scorns all things not of the concrete mind begins to look about for stones with a view to purchasing, the first thought is of diamonds. In one sense this is well. The diamond brings no ill consequences to its wearer. Neither does it (unless your temperament is attuned to the diamond) bring much that is good. It does give a sort of a "moreness," and for those who care for that sort of thing, social position. To a very highly evolved person, on what Theosophists speak of as the Power Ray, the diamond would act as a focusing point to bring more power to the person wearing it. I personally have a theory that the real Power Ray person should wear a diamond almost bluish white—a sort of a very, very light violet in color—as this is the color of the First Ray proper. This diamond, by the way, is as rare as the real Power Ray person.

Before very long the vibrations of jewels and their power will be so well understood that people will no more wear the wrong jewel than they now will have loud, clashing and garish colors in their homes. Some of you may remember the atrocious red dining rooms of an earlier day. We do not see these now. We are fast approaching the time when

"Color is heard like music
And music like color is seen."

SAPPHIRE: Chastening, cooling, emblem of chastity and wisdom. Warriors in olden times when they had to go and leave their young wives behind would present them with a rope of genuine sapphires. This was thought to keep the wives true to their husbands in their absence. Whether this was effective or not, it was certainly not to be despised as a gift. The sapphire was the stone of Joseph, the dreamer, Joseph, the wise and efficient one who manfully resisted temptation, but got in wrong anyway. It is sacred to all teachers.

EMERALD: The stone of intelligent activity and action for the benefit of humanity, service. This stone has been highly prized in all ages as far back as can be traced; it is one of the sacred stones of the Atlantean races. It is said to be effective as a stone of healing, especially if worn around the neck. It was sacred to the tribe of Levi in the time of Israel. The name Levi means attached or joined. In this case to the altar. The Christians cherished the emerald as an emblem of the resurrection. It has a tendency to make its wearer charitable and benevolent.

RUBY: The stone of royalty in various periods in history. It has also been called the emblem of devotion. It is, however, the devotion that makes the devotee one with his deity—devotion which permits him to approach his Creator with his head up, not cringing. It has been the stone of the priest-kings in earlier times, showing its devotional properties.

PEARL: From observation and study, I personally believe the pearl to have the highest spiritual vibration of all. It is said that one must be cultured to love pearls at all, so even in the material world it stands for highest refinement. When people of coarse temperament come into possession of a pearl for its monetary value purely, trouble to this wearer nearly always follows. The vibration of the pearl is not for the coarse, the gross, the materialistic. In cases of this kind the pearl avenges herself by making the wearer miserable. Hence the belief that pearl brings tears.

OPAL: This stone has also caused much controversy, something like the pearl. There is, in fact, something akin — some sort of affinity between the two stones. Both are non-mineral, the opal a vegetable substance and the pearl an animal, so both are in advance of their mineral brethren. It would be difficult to imagine anything more beautiful than a fine opal. It has in its depths all

that we can conceive of beauty, the sunset and moonrise, the green-blue of the sea and the sea's foam; the exquisite coloring of the most beautiful flowers. In fact, a beautiful opal is a poem, "Shining like a sunbeam-smitten tear, fugitive flame and water of secret springs." This stone should never be given by a lover to his sweetheart. It will make her fickle. The opal is primarily the stone for the artist, the unconventional one, also for one who has attained to love for all that lives, as present from a relative, from father to daughter, or from husband to wife, if they have been married long enough to become acquainted. It brings good fortune.

AQUAMARINE: Stimulates the intuition as well as the intellect—makes the wearer quick-witted. Is one of the gems that can be worn by nearly everyone with profit, the other two universal gems being beryl (a cousin to the aquamarine) and the tourmaline.

TOURMALINE: Comes in several colors, some say seven. I have seen five of these. This is the universal stone and has been called the peace stone. It has very strong vibrations which can be noticed by anyone who is even slightly sensitive, when the stone is held in the hand. The green tourmaline is especially good for people engaged in business, it attracts success. The pink attracts love and liking from the people around you. If you ever find yourself in a place where you are unpopular get yourself a pink tourmaline.

TOPAZ: Attracts friendship, not love. Topaz is also an aid in solving abstruse scientific problems.

CORAL: Is considered sacred among many people. In the middle ages every child born was given a chain of corals to wear around his neck, if his parents and relatives could afford it. This stone is said to make women beautiful and to prevent one from growing old. Not many years ago the Dalai Lama, of Thibet, had a beautiful ceremonial vase made of coral in Paris, France, which he placed in the temple at Lhasa.

BERYL: It seems to assist clairvoyance. In almost prehistoric times this stone was used as a globe for crystal gazing. Is said to give the wearer dominion and authority. It brings dissension and misfortune when given by a man to his sweetheart or wife, or by a wife to her husband. It is splendid for single women, especially those who are engaged in business and particularly if they want to remain single.

PERIDOT: If there is a stone at all in the category of gems that brings ill luck, it is the peridot.

LAPIS LAZULI: Brings wealth and good fortune—especially to those born in November or December.

HYACINTH: Is also one of the gems highly prized by the ancients—that we hear very little of nowadays. It is a sacred stone among the ancient Assyrians—also in the early middle ages.

JADE: There is so much to be said about the jade that it would take a whole lecture to cover it. This stone of powerful benevolent vibrations—was sacred in Atlantis, as will be seen by the remnants of jade found near the temples of Yucatan. It is believed among the Chinese that this gem has very high occult properties. In China the first wife wears jade while the second wife must content herself with diamonds.

AMBER: Prolongs youth. In olden times when a warrior grew too old to fight, instead of investing in goat-glands he took to wearing amber. We are told that it was effective, perhaps as effective as our modern methods.

AMETHYST: The gem of the coming age. Has the highest vibration of all the gems, vibrating at the rate of 42 trillions per second. Gives judgment and discrimination, protects from violence and theft; worn by a man it will attract to him the love of beautiful and high-born as well as famous women.

SARDONYX: At St. Alban's, in England, this stone was used to give relief to women during child-birth.

The true value of birth stones from the viewpoint of the occult with their correct assignments as to the birth date is as follows:

January 20th to February 20th: Onyx and Crystal.
February 20th to March 19th: Coral and Amber.
March 19th to April 21st: Amethyst and Almandine.
April 21st to May 22nd: Emerald and Carnelian.
May 22nd to June 23rd: Aquamarine.
June 23rd to July 21st: Pearl and Moonatone.

Neighbors to the A. S. C.

TO serve its rapidly growing family of customers, The Bank of Hollywood has, during the past month, occupied commodius quarters both for its MAIN OFFICE and for its BRANCH, and is now equipped to handle an unlimited volume of business with every possible convenience at the service of its clientele. This expansion is due to a healthy, natural growth through efficient management, courteous service and constructive co-operation with THE BANK'S customers. Ours is an Independent Bank, which is a distinctly Hollywood community institution, and the only Bank in the central shopping district of Hollywood under State Supervision.

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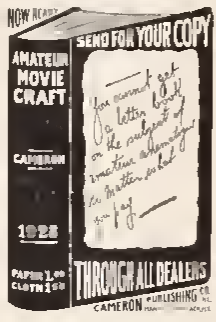

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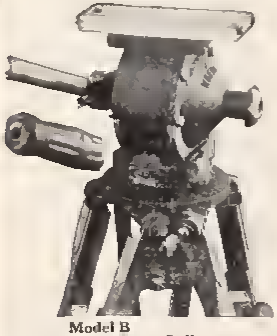

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Model A

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July 21st to August 22nd: Ruby and Jade
August 22nd to September 21st: Tourmaline.
September 21st to October 23: Sapphire and Hyacinth.
October 23rd to November 22nd: Agate and Malachite.
November 22nd to December 21st. Lapis Lazuli and Chrysoprase.
December 21st to January 20th: Beryl.

People whose 25th, 34th, 43d, 52nd and 61st birthdays fall in 1928 will find the Amethyst unusuly helpful this year.

Talkies for Christie

Al and Charles Christie's deal with Western Electric for talkies is going ahead with immediate realization in their first feature this season for Paramount "The Carnation Kid," starring Douglas MacLean. Charles Christie just returned from New York, sent word ahead that all arrangements were completed and that in addition to the thirty-two two-reel Christie short features which will have sound effects and in some cases actual talking, "The Carnation Kid" will be synchronized from opening to fade out.

Although Los Angeles theatre-goers remember MacLean as the leading man at the famous star-incubator, the Morosco Theatre, fans the world over will discover for the first time that he has an exceptionally good speaking voice, and one that is to be put to good use in "The Carnation Kid."

The spoken lines and the detailed description of the sound effects have just doubled the size of the script for "The Carnation Kid." Al Cohn's story has already been scenarized by Henry McCarty, with fully as much attention to that which will be heard as to that which will be seen. From the atmospheric marine scenes permeated by the low moans of tugboat whistles, through the dialogue of raucous voices checking off cases of illicit cargo, to the heart of the story where the roar of election night will mingle with the sputtering of machine guns, "The Carnation Kid" will make a bid for a definite place as the first story ideally planned and fitted for sound. Jack MacKenzie, A. S. C., will photograph the production.

The Cine-Kodak Scores

Moving picture films taken with a Cine-Kodak among Aztec and Mayan ruins in Mexico have been bought without solicitation by the visual education division of the Board of Education of San Diego, California.

They are the records of Mexican and Indian life among ancient ruins taken by Emma-Lindsay Squier while gathering legends for her recently published book, "The Bride of the Sacred Well." Miss Squier took the pictures for non-commercial purposes and was not aware of the market for them until she was approached by school authorities after a showing at the San Diego museum of natural history.

The films were specially edited into four reels, each double standard length and entitled:

1. Mexican Children and Pets.
2. Mexican and Indian Customs.
3. Mexico, Ancient and Modern
4. Ruins of Ancient Mexico

Miss Squier is now in the very primitive panhandle section of Guatemala, among Mayan caves in the neighborhood of Lake Peten, tracking down legends for a sequel to "The Bride of the Sacred Well" and taking moving pictures of modern Mexican and Indian life in their ancient settings with special consideration of their use as educational films.

Questions and Answers

Q. What are the photographic qualities of gold, brass, copper, gold leaf, bronze, etc., on regular stock? On panchromatic stock?

A. It is impossible to answer the question as the photographic condition of these metals depends not only on the quality of film used, but also on the quality of the light under which they are photographed, on their degree of polish, on the angle under which they are presented to the light, etc.

Q. Is it possible to take first class titles with sunlight and no artificial lights? If so, will you describe and diagram the apparatus and method?

A. Yes, it is possible to take titles under either sunlight or diffused daylight. No special apparatus is required, the only requirement being that the title card be evenly illuminated and the camera so set that the axis of the lens is perpendicular to the title card surface at its center.

Q. At the beginning of the first reel of a film, is a certain number of blank film allowed for threading the projector?

A. Yes. Some three to five feet of blank film is always left at the beginning of each reel for the purpose of threading the projector. An equal length of blank film is usually spliced at the end of the reels, also.

Q. How many feet is allowed from the last title ("The End"), to the actual end of the film?

A. The title ("The End") is always faded out. A good length of the title would be 2 feet in full and 4 feet for the fade, making a total of 6 feet.

Q. Is there a blank footage, or footage of any sort, allowed at the beginning and end of reels between the first and last reels?

A. A blank footage is spliced at the beginning and end of every separate reel. The customary length of every reel is 1,000 feet. At times, 2 reels are spliced together so as to make one of 2,000 feet If such is the case a piece of blank film is spliced at the beginning and another piece at the end of the 2,000 feet roll.

Q. Is this extra footage referred to in the last three questions included in making a "reel" 1000 feet, or is this miscellaneous footage included besides the 1,000 feet of "picture?"

A. Reels of film are not necessarily exactly 1000 feet in length, in fact, they always are either somewhat shorter or somewhat longer. If this question is prompted in reference to cost of laboratory work, the leader, as the pieces of blank are called, are, of course, charged at a much different and much lower price per foot than the actual pictures.

Q. What was the general decision reached by you professional gentlemen about the use of incandescent lighting in the experiments held, I believe, at Warner Brothers?

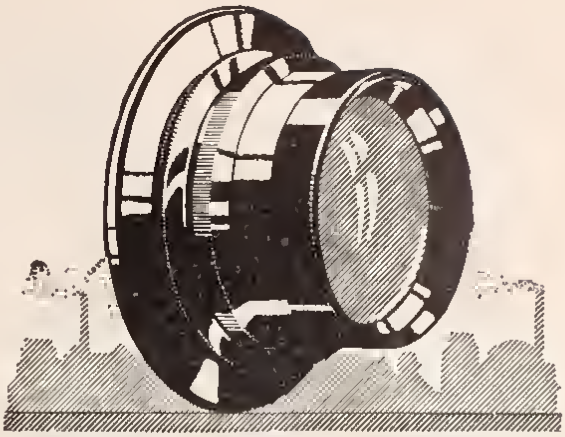
A. The economic advantages and the photographic results obtained by the use of Mazda lights have been proven worthy of serious consideration through the experiments referred to The American Cinematographer has published in its May issue, a report on this subject which has been presented to the Society of Motion Picture Engineers by the Research and Educational Committee of the American Society of Cinematographers.

Q. Will you give a list of books, or trade journals from which one can pick up professional knowledge of the mechanics and workings of the industry?

A. Books and Trade Journals treating on Cinematography are so numerous that it is impossible for this department to give a list of them. If you happen to be in Hollywood, drop in our office and we will be very glad to help you out in this matter.

Q. Why are reflectors with gold paper used instead of the silver kind? Is this because panchromatic stock is being used?

A. Yes. Gold leaf reflectors are very effectively used in connection with panchromatic film. These reflectors absorb a great deal of the blue and violet radiation of the sunlight and thus the reflected light is more appropriate for good chromatic condition.



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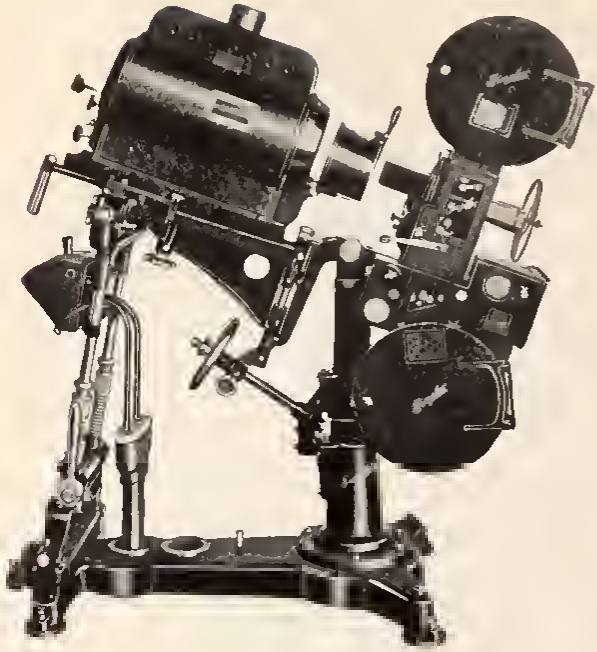


MOVIETONE EQUIPPED MEANS SIMPLEX EQUIPPED

in America's Leading Theatres

❖❖

INTERNATIONAL PROJECTOR CORPORATION

90 GOLD STREET ❖❖ NEW YORK

New Simplex Stand

The New Simplex Stand, which is amply covered by patents, represents a radical advance in motion picture projector design and unquestionably meets many of the requirements created by the present demand for better projection. At one time, progress in the Technical Departments of the motion picture industry was greatly hampered by ignorance and indifference, but with a greater realization of the importance of projection has come a willingness to take an interest in this subject and to pay for worth while improvements.

The introduction of the High Intensity Lamp some years ago gave a great impetus to the movement for better projection and there has been a noticeable improvement of projection illuminants. The development of the High Intensity Lamp, however, brought new problems to the projectionist and one of the most serious of these was the unsteadiness caused by the weight of the lamp and its manipulation. The elaboration of projection presentation through the use of Movietone, Vitaphone and other notable projection novelties with special equipment now being placed on projectors are subjecting them to demands and strains which could not very well have been anticipated in the original design.

Attempts to overcome unsteadiness resulting from this additional equipment were at best mere makeshifts and weight and bulk were largely depended upon to maintain balance. The Simplex Pedestal as originally designed and the five-point pedestal which was later used served for a period, but even these proved inadequate. Various braces were manufactured and used but such devices have their limitations. While it is true that the defects of the earlier designs were partially overcome by these substitutes they were unsatisfactory because they failed to supply true balance and rigidity. Modern requirements demand that the Projector shall have rigidity and balance and these have been fully secured in the New Simplex Stand solely through design, based upon mechanical principles and without the aid of supplementary devices.

While there is some slight resemblance between the front of the new Simplex Stand and the former Simplex Pedestal in all other particulars they are different. The Base, as with other assemblies of the New Model M Stand, should not be considered as a mere modifying improvement, but one of a series of revolutionary changes making a harmoniously designed unit, totally unlike any other Pedestal or Stand, and overcoming many of the difficulties heretofore encountered by users of Motion Picture Projectors.

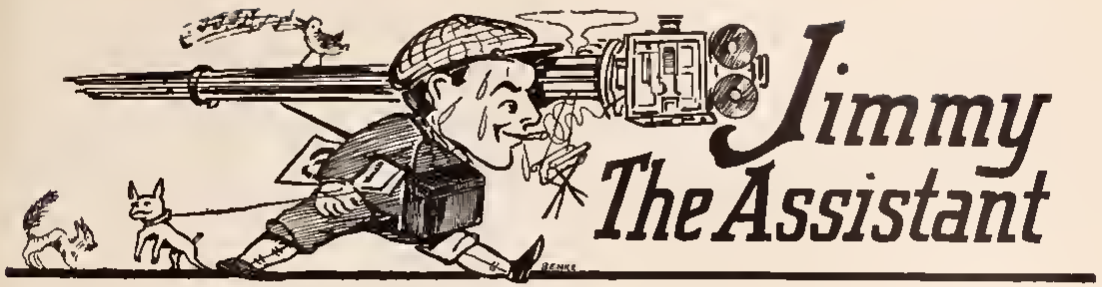
S. M. P. E. Pacific Coast Section

On the evening of Thursday, June 14th, the Society of Motion Picture Engineers, Pacific Coast Section, held its monthly meeting in the rooms of the Academy of Motion Picture Arts and Sciences.

A dinner preceded the meeting and was followed by an interesting discussion on the properties of the water of Los Angeles and adjacent communities in reference to motion picture laboratory work. Mr. A. R. Maas, of the Maas Chemical company, lectured on the subject.

Two pictures of very unusual interest were shown, one presenting the evolution of aviation in re U. S. Navy, and the other illustrating the first lap of the flight of the "Southern Cross." This picture created great enthusiasm because of the perfection with which all preparations for the historic flight were shown and for the extremely interesting shots taken during the flight to Hawaii by Mr. Ulm, co-pilot of the plane.

The meetings of this S.M.P.E. section are always well attended and prove a source of real interest to all members.



Talking Pictures

Deer Mr. Editor:

I don't know when I've had anything upset me like the sudden epidemic of talking picture fear that's sweeping the whole industry. Here I go away on location for four months leaving everything running as smooth as it ever does; and no sooner is my back turned when they break out into a regular rash about Talkies. And what do I see when I get back? Everybody scared—just downright scared. Don't let anybody kid you—that's what's under all this excitement about the talkies. Perducers—let alone actors—ain't sleeping good because they're scared some otber perducer will get an edge on 'em on something or other in equipment; and all down the line you get the same uneasy feeling of having all the underpinning swept away and everybody wondering where they're goin' to light.

Actors are worried about their voices; directors wish they'd had stage training; cameramen are reading up on everything radio from crystal sets up. Every blessed soul in this business is just scared green for fear they ain't going to fit into the talkies; and it makes me so (deleted) mad about the whole (deleted) business and the (deleted) sap-headed attitude of everybody connected with the (deleted) affair that I could just darn near cuss!

In the first place the panicky rush into talkies is just going to set our dear little picture business back about two years. That's one thing to be mad about. In the second place the helluva rush to beat the other fellow in getting talking pictures out is going to mean lousy pictures—no two ways about **that**. And the total result is that we'll get punk regular pictures and punk talkies and the first thing you know the public'll start staying home. Lord knows they're hard enough to get out as it is, without discouraging them any more.

And I mean it, too. Let 'em holler all they want to; the real situation is that talking pictures is a long way from being a satisfactory proposition. There's a lot left to be done. Tecknickelly they're all right; but tecknickel correctness never yet meant anything to the box office.

I ain't doubting that perducers try hard enough; but the fact remains that they're first class saps sometimes. They always do the obvious—never seen 'em miss yet. And what's the obvious in talkies? Reversion to stage tecknick, of course. And what a fool thing **that** is. It tears the very heart and soul out of a beautiful art.

It took 'em fifteen years to learn that naturalism is the secret of success in pictures. It took 'em three centuries before that to learn that artifishality is the secret of success on the stage. One is truth, the other illusion. One is like a oyster on the half shell—raw, naked, and real. The other is like a fancy ice cream, the skilled blending of a dozen ingreedients. Each is good in its proper use. But mix 'em and you get an oyster sundae—which is a good parallel for what we're in for in talkies if somebody doesn't pull an unexpected miracle.

Go to any talking picture, shut your eyes, and if you don't get exactly the same effect as in a theater there's something wrong that somebody's gonna get heck for. For the ideal they're working for in speech from the screen is to duplicate as far as possible the stage voice quality, the stage spacing of words, the stage delivery of speech, and the stage construction of sentences. All of which is the rankest kind of hooey—for pictures. Now reverse yourself and stop your ears, and see if you don't see the punkest kind of movie action you've seen in all this world. Now, just to cinch the argument, take a look at any talkie news weekly, and if it don't top anything else on the program both as for sound and sight, it's just a sign that you ain't no judge of entertainment.

Naturalism is IT so far as pictures are concerned. Talkie news weeklies are nothing if not natural. Natural in their unrehearsed action and their unplotted speech. And they're the high spot of any bill. Weeklies **have** been audience getters ever since they started; but it's only recently that perducers have woke up to why.

The simpler a thing is the harder it seems to be to understand. Take the simple frase "moving pictures." There, in two words, is the whole essence of the business. The name carries with it the formula for success. Moving pictures that are **moving pictures—moving**—meaning just what the word means—**pictures**—meaning just what the word says—click with the public. Anything else flops. Lots of good money has been wasted trying to make acting, names, mobs, sets, size, stories, authorship, trademark, and I don't know what else, take the place of MOVING pictures. And just as sure as you're alive there's going to be just the same old story over again, only told in a sadder strain, of exhausting every other possibility before coming down to the bed-rock fact that talking moving pictures are talking moving pictures.

And what a weary old road it's going to be! And all to reach so clear an end. First we got to put up with voices instead of actors. It'll take 'em a long time to learn that a well trained, beautifully modulated voice ain't **all** there is to waking up emotions. The voice of the elocutionist will be heard in the land and will remain until the public starves 'em out. Tecknishians will take the place of artists at the camera. The stage will be raided for its actors, its plays, its directors, and its necessarily following tecknick. **That's** all got to be gone through with. The poor (deleted, deleted, deleted) saps!

Then, after a combination of starvation and bankruptcy drives them to it, they'll wake up to the fact that what is really the thing to do is to make talking pictures, not vocalized still pictures, not photographically recorded plays, not anything else but good moving pictures made better by the addition of words and music.

Don't ever kid yourself into thinking that the talkie will be one thing and the movie another. Not a chance. In the first place, talkies **are** moving pictures—or should be; only they're moving pictures with about a thousand times the outlet for expression that the old movie had. And in the second, and overwhelming last reason, they make it possible to give a better show for less money. Less money from everyone—the perducer, the exhibitor, the public. And that's all you have to know to decide whether they're going to be IT or not. They ARE—and how! Regular movies won't disappear, of course. I understand many of the older families still have stereoscopic views for the guests on the what-not.

Cheap, good entertainment rakes in the berries every time. Always has and always will. Ever since the game started the perducers been climbing up the ladder on little pictures that could be made, sold, and exhibited cheaply and going broke on big artistic successes. Cheap, good entertainment is IT, I tell you, and that's exactly what the talkie is and that's why it's going to cop everything.

The talkie's so much cheaper than the movie that there ain't no comparison. Maybe you think it ain't, but it is. You got to look at any business as a whole and not as a part, and in the picture business the cost of making the picture is just a starter. It don't amount to one-two-three with the total cost—the real total cost of the picture.

Say a picture costs a hundred thousand. That's your start—NOT your finish Onto that tack your exploitation cost, slip a little something to the exchange boys, pay a slice of the operators salary in the thousands of theaters it will be shown in, together with ushers, organist, orchestra, prolog, theatre cost or rent, taxes, interest—all multiplied by the number of theatres used—and gee whiz!—the first thing you know you won't be able to find that measly hundred thousand under the mess of really good sized figures that's piled up on top of it

You'll never see these figures because they ain't put out—at least, not that way. You just get results. You hear that a picture only grossed $25,000 a week at a certain theater and lost money. Or made money. Anyway, that picture cost somewhere around $25,000 to put on at that theater, didn't it? And what's **that** but picture cost? All right, multiply **that** by your cities and see if it means anything

It means just this. The heavy jack is juggled by the exhibitor, not the perducer. All the money invested in the producing end, from the home office building, the studio building, all equipment and salaries and stories and everything is piffling compared to the money laid out in theatres, exchanges, and salaries for the hundreds of thousands of employees to run them. Why, there's single theatres that have got more dough tied up in them and cost more to run than lots and lots of entire producing companies I could name

Now what I'm getting at is this. If you whack off a few hundred thousand or add a few hundred thousand on to your studio costs it don't mean such a heluva lot; but if you trim off a few hundred **dollars**—not thousands—from your exhibition costs that saving multiplies and pyramids itself into a tremendous saving, because it works not in one place but in thousands of places

All right now Let your sound equipment and slower production set the studios back a little if it will. What it will save when it gets out is nobody's business.

If I told you that a regular movie is usually shown with a two hundred thousand piece orchestra and fifteen thousand organs accompanying it you wouldn't believe me; but it's not only true—collectively—but I'm underestimating the number considerably Just take that one item and lift it out of the red and see what a boost it gives to the black Now, as another nice exercise in single picture cost and profit computation let's be modest and only lift a measly million over onto the black side through dropping prologs just for one picture Think that's too high? All right. Figure it out yourself. Multiply number of people used in the prolog by the number of theatres showing prologs; then get their salary cost per performance and multiply THAT by the number of times the picture is shown and see what you get.

Maybe you think they won't drop prologs That entitles you to another think. Who's going to bother with third rate talent when they can get the best? And what sane manager is going to pay thousands for an inferior article when he can get the best for hundreds? Don't be silly!

Sound pictures offers the same glorious advantage that pictures do—that one, grand peculiarity that belongs to pictures alone and which five or six people in the industry are beginning to realize; which is: Get it good once and you've got it forever. No matter how much it costs or how much time it takes, if you get it **good** just once!—only once!—then you can go die if you want to, but that once will live always Talking pictures can give the world's greatest of everything in entertainment.

No two audiences ever see exactly the same stage play. Stage performances vary always. But a screen play never varies; and there lies its strength. Two Forks sees the same show that New York got And Two Forks will see and hear the same show that New York got. There lies the strength of sound pictures. They can and eventually will offer the best entertainment in the world caught at the moment of its best performance.

There's nothing on the horizon of the world that offers a rival for such a combination as that. And even if there were, it couldn't compete; for the sound picture can undercut any comparable entertainment by a matter of dollars.

Don't kid yourself about the solidity of the talkie. It's got everything

BUT—as I was saying—the poor, helpless movie industry is in for two years of tooth-cutting, measles, house-maid's knee, growing pains, green apples, poison ivy, whooping cough and all sorts of childish woes. For they WON'T be sensible. They've got talkies, and they're going to make 'em talk or die; and it won't be until they've talked a few million customers out of the theatres that they'll commence to figure that maybe they'd better ease down on the dialog and stick in some action.

It's going to take a lot of staying away from the theatre on the part of the public to show the perducer that stage diction and stage delivery belongs on the stage but not on the screen. Pictures are natural; the stage is artificial. Natural pictures require speech; but it's going to be a long weary time before Our Little Nell stops talking with tone-color, voice-placing, inflection and emphasis.

And the plays—Oh, Lord, the plays! We've got all THAT to go through with Plays written for the stage, with all its limitations, are just about inevitable. The perducers will do their usual stunt of following the obvious; and now that the screen has got a voice they'll grab all the stage perducers and stage directors and uplift the art of the speakies. We'll get Belasco and Shaw and Shakespeare and O'Neill and Ziegfeld and all the rest until Two Forks puts a stop to it by refusing to pay for something they can't understand.

In short, we're in for a new deal, and the game is dated right back to the rules of nineteen-fifteen Thirteen unlucky years of penalization just because we went forward a step We got 'em all to live over again, only we'll do it faster since we know the road.

In 'fifteen we had a scourge of stage directors They flopped, because the better a stage director is for the stage, the worse he is for movies Then we got a lot of names from the stage and had a company—Famous Players—who did the stunt of exploiting 'em. They flopped, in favor of nobodies who were great picture actors Perducers dropped both these liabilities to keep from going under financially; but they made a desperate effort to keep wrong just the same, so we had a spasm of eminent authors **They** flopped; and the game was kept alive by unknown **picture** writers Then we had master mind directors; and **they** passed out Then the star system struggled along to a hard dying Eventually, after having been bumped hard and often by trying to avoid making moving pictures the perducers just had to stop fooling and go to work making good moving pictures in order to keep alive And now, just as they're going good, this (deleted) (deleted) thing has to happen.

It's good or bad according to how you look at it I've often wished I could start all over in pictures with what I've learned about them; and now here's the chance. There's no doubt about what they are going to be—in a few years. They're going to be our regular moving picture with the added advantage of words and music, and they're not going to be anything else. Anybody that can cash in on that ought to do so But it's going to be hard to do The perducers are going to have to be absolutely forced to accept the inevitable just like they were forced to before; and a lot of them will go down with the wrong colors flying, just like they did before.

Guess I'd better not go away any more.

Yours for louder and better pictures,

JIMMY.

THE Film DAILY

TEN BEST CINEMATOGRAPHERS

IN an effort to locate the ten leading cinematographers, THE FILM DAILY with the 1928 Directors Number inaugurated a ballot for the ten best cameramen.

Leading directors in the field of motion picture production cast a ballot and from these ballots the ten cameramen listed below have been compiled.

There have been many notable achievements in photography in recent years. Those men who, in the opinion of the directors, have been worthy of recognition should not be overlooked when the American Society of Cinematographers has been engaged in its task of selecting from its members those who rank as the ten leading cinematographers of the film industry, some of the credit to which their artistic efforts entitle them.

This publication has long been in sympathy with the aims of the society and hopes that through the medium of the ten best cameramen ballot which it will be a habit of each succeeding Directors Number that experts will be engaged in the work of the A. S. C.

Cameraman	Votes	Cameraman	Votes
George Barnes	22	Arthur Edeson	12
Oliver Marsh	18	Robert Kurrle	8
Karl Struss	16	Peverell Marley	8
Charles Rosher	14	Victor Milner	8
Tony Gaudio	13	Ernest Palmer	8

Some Notable Productions of the Ten Best Cameramen

GEORGE BARNES
Two Lovers
Sadie Thompson
The Dark Angel
The Magic Flame

OLIVER MARSH
The Enemy
Sadie Thompson
Cinelle
Annie Laurie

KARL STRUSS
Drums of Love
Sadie
Sparrows
Meet the Prince

CHARLES ROSHER
Tamoni
Mr. Pi
Sa
Lily Anne Rooney

ARTHUR EDESON
Stella Dallas
Private Lauther Kid
The Gorilla
The Rit

ROBERT KURRLE
Sadie Thompson
Romola
Resurrection
The Tender Hour

PEVERELL MARLEY
King of Kings
Chicago
The Volga Boatman
Drums Prande

VICTOR MILNER
Wings of All Fifth
The Wanderer
The Showdown
Three Sweets

TONI GAUDIO
The Greeks
Tom Jackson Knights
Gauntlets
The Temptress

ERNEST PALMER
The Street Angel
Seventh Heaven
Eat Little
No Other Woman

The Directors Who Voted

Atkins, T Carlyle
Beauchamp Clem
Bell Monta
Brenon Herbert
Capra Frank R.
Chaudet Louis Wm
Clift Denison
Darling W Scott
Davis Al
Del Ruth Roy
Dixon Denver
Fitzo Paul
Fitzmaurice George
Flood James
Fox Eau
Griffith D W
Hiremn Al
Howard William K
Kelly Albert
Kirkland Da id
Lang Walter
Lighton Lew
Mmeman Lew
Mmman F W
Newfeld Sam
Newmeyer Fred
Raymaker Herman C
Reed Luther
Roberts Stephen
Rock Joe
Rogell Al
Saunders Richard D
Seiter Jerome
Taylor Sam
Thomas Richard
Tuttle Frank
Walters John
Wellman William A
Whale John J
Wood Sam
Yeaworth Frank

Enlargements from Single Frame Motion Pictures

By DR. K. C. D. HICKMAN

(*Continued from Page 6*)

In conclusion, it may be stated that contrary to general opinion the most pleasing result for display purposes can be secured by using a contrasty glossy paper. This gives the picture such snap and brilliance that the lack of quality becomes subsidiary. The heavy surface matte papers, while burying many defects, do not throw the subject into sufficient relief.

There may be those who doubt the utility of such elaborate precautions for securing single frame enlargements. Most of the advertising material in the motion picture business is admittedly artist drawn or made from "still" negatives. The necessity for the latter, however, lies in the appalling quality of the single frame enlargement. There is no doubt that for subject matter and action the picked single frame must be superior to the posed still. It is hoped that this short paper will induce at least some of those whose business lies this way to try the experiment of making two enlargements from motion picture film, one "straight" and the other using the "glycerine sandwich" in conjunction with diffused lighting.

Al Gilks, A. S. C., writes from Long Island City that he will remain there indefinitely at work on sound pictures for Paramount.

Frank B. Good, Billy Tuers and Bill Sickner, all A. S. C's, are on location at Cheyenne, Wyoming, shooting a series of pictures with Ken Maynard, from the famous "American Boy" stories.

Elmer Dyer, A. S. C., has just completed the Akeley shots on Buck Jones' latest starring vehicle, "The Big Hop," an aerial picture produced by the Buck Jones Corporation. James Horne directed. Jobyna Ralston played opposite Mr. Jones.

GOERZ

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Cinegor F. 2 and F. 2.5

in focal lengths from 1¾-inch to 4-inch and the telephoto series

Telestar F. 4.5

in focal lengths from 4½-inch to 13½ inch for long distance shots and close-ups

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Class Room Films

An Experiment in Their Development From Scenario to Screen---A Plan to Test Their Value---Part II

[Abridgement of an address delivered by Dr Thos E Finegan, Education Director of the Teaching Film Department, Eastman Kodak Co., before the Society of Motion Picture Engineers, Lake Placid, N. Y., September 28, 1927—Editor's Note]

pictures should desl with situstions, activities operations, processes, etc. With these restrictions in their use there is an inexhaustible field of service for the motion picture The subject selected for filming should fall within these limitations. Certain subjects may be represented as well and even better by still pictures than by motion pictures. A program of motion pictures should not invsde the still picture field. In the activities and processes of every avenue of human effort and interest are subjects of vital relation to society which can be accurately represented by the motion picture only. In developing films to be used in the Eastman experiment the limitations herein prescribed for motion pictures have been respected.

This experiment is designated as one in the development of classroom films. What are classroom films and how do they differ from other films?

The name itself denotes a special and definite use, and therefore a distinct type of film. The name implies a film used in the classroom by a teacher giving instruction to his pupils. This type of film is therefore simply a classroom agency in the hands of a teacher. It is to be used by him when needed, similarly to the use of other classroom aids or apparatus. It is not a substitute for the teacher nor for the text book. It is just a tool to clarify his work and make it more impressive. It should be adapted to specific lessons and to definite grades.

The classroom film should be distinguished from the general assembly or auditorium film. The auditorium film is one intended to be used for a general audience of varying ages, grades, and interests. It is used to provide entertainment or to give mass instruction. There is no competition between these two types of film; one does not serve the legitimate functions of the other. A film which is developed on pedagogical lines to illustrate a fundamental principle or to clinch some central truth which the teacher is endeavoring to develop in the minds, for instance, of a class of sixth grade pupils is seldom adapted to the use of the general assembly. On the other hand, a film which will provide instruction or entertainment for the auditorium is not generally adapted to the more limited and specific purposes of the classroom.

Briefly, the plan of the experiment is as follows: The school authorities in twelve cities of the country were invited to cooperate in the experiment. To give the experiment the benefit of varied interests and viewpoints in education and to make it expressive of national interests and conditions, cities were selected from various sections of the country. The following cities were chosen:

1. Newton, Mass.
2. Rochester, N. Y.
3. Detroit, Mich.
4. Chicago, Ill.
5. Lincoln, Neb.
6. Denver, Colo.
7. Oakland, Calif.
8. San Diego, Calif.
9. Kansas City, Mo.
10. Atlanta, Ga.
11. Winston-Salem, N.C.
12. New York, N. Y.

Four schools have been designated in each city for experimental work. Three of these are elementary schools and one is a junior high school. Two groups of children will be under instruction—the control group or those given instruction without the use of films; and the experimental group or those given instruction with the use of films. Each of these groups will represent children coming from similar home environments and social conditions in life. They will be given tests to determine that they are on the same intellectual level. In each city there will be at least 320 pupils receiving instruction in the same area of the subjects included in the experiment There will be 160 receiving instruction with the use of the films and 160 without the films.

In six of the cities it has been planned to use 1,000 pupils in classes instructed with the use of films and 1,000 in classes without the use of films. In each of these six centers 2,000 pupils will be included in the experiment. It is believed that an experiment of this character, with approximately 14,000 pupils in twelve leading cities in the various parts of the country will be adequate to obtain reliable and convincing evidence on the problems involved in this experiment.

Three subjects in the school curriculum have been chosen and films are being produced on topics outlined in the curriculum for classroom consideration. These subjects are geography, general science, and health.

In geography thirty films will be produced. They will be limited to the United States and will, of course, be correlated with the subjects as treated in the curriculum. They will be adapted to children of the fifth and six grades. In general science fifteen films, and in health five films are being produced. These films will be adapted to the pupils of the first and second year of the junior high school and will be correlated with the selected subjects treated in the curriculum.

It has already been stated that the scenes in motion pictures should denote action and that the films in this experiment are of such type. The following names of some of the geography films are given as evidence on this point:

Panama Canal, Bituminous Coal, Anthracite Coal, Iron Ore to Pig Iron, Pig Iron to Steel, Deep Sea Fishing, Wood Pulp, Wheat, Flour to Bread, Corn, Cattle, Wisconsin Dairies, Hydro-Electric Power in the Appalachians, The Overland Route, The Oregon Trail, and The Mohawk Valley.

In general science these are some of the films:

The Water Cycle, Water Power, A Municipal Water Supply, and Purifying City Water.

This group of films on water affords sequences upon a common subject which is a necessity of life. There is no agency through which the interrelated interests and processes of these subjects could be so accurately and effectively presented to a class of pupils as through the motion picture. One of the problems of the class-room is to coordinate subjects in the curriculum in such a way that pupils may get a broader knowledge of these interrelations. For instance, A Municipal Water Supply is primarily a general science film. It has direct relation, however, to the subject of health and is a fine example of a film in the field of civics. Through no agency either still picture or text, could this correlation of interests be so explicity shown as through the motion picture.

We now come to the technical aspects of the development of a film program. The first step is, of course, the preparation of a scenario. A scenario for a class-room film, as already stated, should be correlated with the curriculum. It should deal specifically with the subject matter presented through printed text and oral instruction in the classroom which is intended to illuminate and clarify. It should call for material which will be within the intellectual grasp of children of the age and grade for whose instruction it is intended. It should deal strictly with its main thesis and should seldom go into digressions or upon excursions into other aspects of the subject. These collateral aspects should be treated in scenarios pertaining to their peculiar interests. It is not possible nor is it necessary, to present in a film all the material bearing upon the subject to which it is related. Mere information or tabulated material should not be included. A scenario should never be padded. The basic features only, which are picturable and essential to a fundamental knowledge of the subject should be presented.

The scenes called for in the scenario should be limited

of course to subjects, situations and processes which it is proper and suitable to present to a class of children. The scenario should be based upon sound principles of the psychology of childhood which scientific research has made available. The approach to a subject and its development in the scenario should conform to the practices of the classroom which are generally accepted in the teaching profession. The scenario should call for a film which should always be regarded simply as an aid to the teacher in his regular daily class-room instruction.

The continuity of a scenario should be clear and without a break. The wide gaps which may be allowable in a film for mature minds are not permissible in a classroom film for the instruction of children. The continuity may sometimes be strengthened through the judicious use of titles. On the other hand, too many titles often interrupt the continuity of thought. They should not be used when the continuity may be expressed and the scenes properly interpreted without them. Titles should be short, clear and expressive. Each title should generally contain not more than a single idea. This policy of using titles should be in keeping with the sound teaching principle that a child should not be told that which he may be able to see or discover for himself. Furthermore, there is an economic aspect to this feature of a film. Titles run rapidly into footage and the more titles are used the less footage will, of couse, be available for scenes.

It follows from these specifications that the writer of a scenario should be a teacher of broad and deep knowledge in the field which it covers. He should be experienced in the science of education and the art of teaching. He should be a scholar and teacher of creative power. He should be endowed with imagination and the genius of an artist. He should be a master in the organization of material and should be skillful in presenting it in logical order and by effective methods.

The Eastman Kodak Company, in the selection of scenario writers, chose teachers of known interest in the field of visual education, who have had large experience in teaching the subjects on which films are to be prepared. For instance, teachers of university training who had taught geography in public schools for 10 to 20 years and are recognized by their profession as leading teachers in that subject, were chosen to aid in the preparation of the geography scenarios. Two of these are teachers in large city school systems and one is a teacher of geography in the training department of a State Normal School. This group of experienced teachers sat in conference with the staff of the Eastman Kodak Company for several days discussing the place and purpose of the film and the underlying principles of scenario construction. Each member of the group then prepared a general outline of a film. Each of these outlines was considered in conference by the staff and these teachers. After such conference each teacher revised his scenario and the revised product was the subject of another general conference. These processes were repeated until the Eastman staff and the scenario writers were in unanimoua agreement on the scenario. These scenarioa have generally passed through seven to ten revisions.

The scenarios were then edited by the Editor-in Chief of the Eastman Staff. They were then submitted for criticism to two of the leading psychologists and specialists in education in this country, Dr. Frank N. Freeman, of the University of Chicago, and Dr. Ben D. Wood, of Columbia University. These men have the esteem and confidence of the educational workers of the nation. Each of them suggested modifications which, in his judgment, would remedy defects discovered, or would otherwise improve the scenario. The scenario was then given final editorial approval and was ready for the photographic division. The same detail of procedure has been followed in preparing the general science and the health films.

In obtaining some of the scenarios for this experiment we followed a plan which has been of much interest. We suggested to the superintendent of each city in which the experiments are to be operated, that the teachers would have a greater appreciation of the value of the film in classroom instruction and a clearer understanding of its application to the subject to which it relates if they were to write a scenario for one of the selected topics. The teachers in each of ten cities prepared a scenario under direction of the Editor-in-Chief of the Eastman Kodak Company. In several of the cities some of these teachers showed unusual ability in writing scenarios. They expressed themselves as being delighted with their experience and were eager to try a hand in writing another scenario.

(To be Continued)

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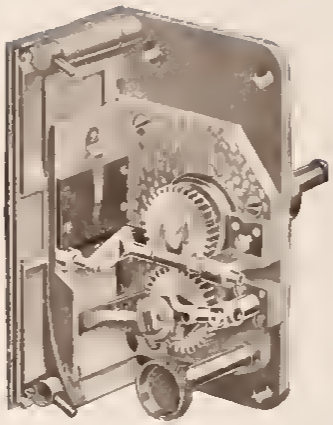

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